White Hat / Black Hat

An Analysis of the Multi-Family Update

Congress of Residential Architects - Northwest Chapter

City Council Brief – September 24, 2009

A study of small infill sites in Seattle, using the code language proposed in the current Multi-family Update.

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CORA NW is the northwest chapter of the Congress of Residential Architects, a national organization dedicated to improving residential architecture and to providing "better design for more people." CORA NW has been an active participant in the process that developed the Multi-Family Update and the public discussion thus far.

As practitioners that design buildings within the constraints we are given, we are acutely aware of how the details of the zoning code influence our built environment, often in unanticipated ways. We have spent the last year studying the details of the code in order to better understand the likely practical effects of the changes, and to recommend alterations to the code that will help produce housing that is more useful, durable, attractive, sustainable, and affordable.

To assist the City council in their deliberations, CORA has agreed to participate in this council study. In addition to submitting our boards depicting some best and worst outcomes for design under the proposed code, we have prepared the following brief summarizing our conclusions.

Architects from six Seattle firms gave up their weekends and evenings, collectively volunteering hundreds of hours to help produce this study. Participants included:

- David Foster, David Foster Architects
- Brandon Nicholson, Nicholson Kavolchick Architects
- Bradley Khouri, B9 Architects
- David Neiman, David Neiman Architects
- Matt Hutchins, CAST Architects
- Jeff Reibman, Weber Thompson Architects
- Sam Castro, Weber Thompson Architects

Logistical support was provided by The AIA Seattle Chapter, and Seattle Great City.

Report prepared by David Neiman.

White Hat / Black Hat

A Brief Explanation

The following brief is a study of the current Multi-Family Update (MFU) proposal. The purpose was twofold: A) To illustrate how the MFU's flexibility can enable better housing design, and; B) To test whether it's gating mechanisms would be sufficient to prevent abuse and exploitation of that same flexibility. We named these two approaches White Hat and Black Hat respectively.

White Hat schemes are roughly defined as projects that use the flexibility of the MFU to achieve one or more of its stated goals: Improved design, better open space, increased affordability, production of a better mix of unit sizes & types, preservation of existing structures, and increased sustainability.

Black Hat schemes, are roughly defined as projects that exploit the flexibility of the MFU to maximize development potential while having little or no further aspirations. In short, they attempt to game the code, and in doing so, to subvert its intent.

It should be noted that the distinction between Black Hat and White Hat schemes is not always a sharp one. All of the schemes are beholden to market forces & must find a way to fill out the development potential for their zone, so they often share many of the same strategies. Often the distinction between them is simply a matter of degree. In this sense they do not necessarily reflect the world view of the developer, but often simply reveal the real-world incentives that are created by the zoning code itself. To the extent this study has uncovered counterproductive incentives or flawed gating mechanisms, we have done our best to highlight these issues.

Executive Summary of Recommendations

1. Remove Density Limits in all L-Zones.

2. Amenity Space Requirements: The current proposal allows for amounts of open space and lot coverage that is inappropriate for ground based housing. Modify to require a reasonable amount of amenity space at the ground plane. Require a 10' minimum dimension for amenity space at grade. Allow a maximum 1/3 of amenity space above grade. The top of a parking lid should count as grade. Eliminate minimum dimensions and size for decks.

Zone	Amenity Space Required
Low L-Zones	Lot area * 0.30
High L-Zones	Lot area * 0.20

3. Particularly on small infill lots, High FAR can incentivize poor design & meager open space. Use incentives to link FAR to the goals of the multi-family update (improved design, open space, sustainability, and affordability).

Zone	Base FAR	FAR Bonus Structured Parking	FAR Bonus Full Design Review	FAR Bonus Small Units	FAR Bonus Green Bldg.	FAR Max Ground Based Housing	FAR Max Stacked Housing
Low L-Zones	0.8	0.2	Up to 0.3	Up to 0.2	Up to 0.2	1.2	1.2
High L-Zones	1.1	0.3	Up to 0.3	Up to 0.3	Up to 0.3	1.5	2.0

4. The small front setbacks typical of projects designed under the new code are incompatible with the floor level to street level relationships created by the 25' height limit. The 30' height limit in L3 is incompatible with structured parking. Modify height limits to allow flexible roof forms, raise main floor levels above street level, and allow for construction that uses conventional framing heights and floor depths.

   - Base height limits should be 30' in all L zones (same as single family).
   - Measure all roof heights to the top of the wall that supports the roof.
   - Exempt all roof overhangs less than 4'.
   - Provide a 30" height bonus for shed roofs.

5. Encourage below-grade and covered parking:

   - FAR and structure depth exemption for all parking structures that provide usable open space or green roofs on the lid.
   - FAR exemption for all structured parking (non-private garages) under buildings.
   - 4' height bonus in L3 for buildings that provide non-private garages under buildings.
   - FAR bonus in for buildings that provide non-private garages under buildings.

6. Encourage basements (raises main floor level above the street & provides low cost units).

   - FAR exemption for basement spaces (basement as defined by building code – if it's not a story its not FAR).
   - Must be done in conjunction with a raised height limit.

7. Green Factor: High green factor does not incentivize decisions that are particularly compatible with residential design. 0.6 Green Factor for housing results in open space used for shrub planting and a proliferation of vegetated walls.

   - Reduce Green Factor to 0.3
   - Require screening of parking, tree plantings in R.O.W.
   - Add a requirement of 50% maximum impervious surfaces to encourage the use of permeable paving & green roofs.

8. Encourage preservation of existing structures.

   - Parking reduction for preserving an existing structure.
   - Expand existing parking exemption in 24.45.020 to allow parking exceptions for existing buildings, regardless of zone and whether the new units are attached.
   - Provide density limits waiver when existing structures are preserved.

9. Encourage Row Housing.

   - Allow zero-lot line side setbacks for up to 30% of the lot where the plat provides street to alley ownership on all sub-lots and all entrances face the street.
   - Look for opportunities to encourage row housing through neighborhood plans & in transformational areas where significant redevelopment is likely

10. Eliminate design standards. They are arbitrary & should be handled by administrative design review.

11. Miscellaneous:

    - Language preventing building over a drive court is full of loopholes.
    - Require 24' separation to a height of 8' above finished grade, not 9'.
    - Front porches should be allowed up to the property line, as long as 3' of landscaping is provided between the porch & the sidewalk.
    - A 150 sf common waste disposal area for small projects is ridiculous. Require common garbage space for apartments; allow individual cans for ground based housing. Require that space for garbage cans be defined on plans.

Black Hat Schemes

Scheme	Title	Zone	Lot Size	Access	Departures
B1	Neo 4-Pack	L1	40x100	Mid-Block	No Departures
B2	Maximized 4-Pack	L3	40x100	Mid-Block	No Departures
B3	Double Loaded Carports	L3	60x120	Mid-Block	No Departures
B4	10 Unit Apartments	L3	60x120	Mid-Block	No Departures
B5	24 Unit Apartments	L3	60x120	Mid-Block	No Departures

Notable Black Hat Strategies:

- Use carports instead of private garages. They don't count as FAR and they don't trigger the requirement for large car dimensions and maneuvering.
- Join multiple structures into a single structure to subvert the requirements that facing structures have a 24' clear drive with 3' max overhang.
- Use areas that overhang the drive court to improve average setbacks calculations.
- Classify all fences as vegetated walls to increase green factor.

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NEO 4-PACK

L1	40' x 100'	MID-BLOCK
BLACK HAT	NO DEPARTURES	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	4000
FAR	1.10
NUMBER OF UNITS	3
TOTAL GROSS SQUARE FOOTAGE	4743
NUMBER OF PARKING STALLS	3
TYPE OF PARKING	PRIVATE GARAGES
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	240
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	40.0%
BUILDING HEIGHT/ROOF PEAK	35'-0"
IMPERVIOUS SURFACE	72.0%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1333SF

ENABLING FACTORS:
1. The lack of an open space requirement makes it very easy for this scheme to maximize FAR without building over the parking court.

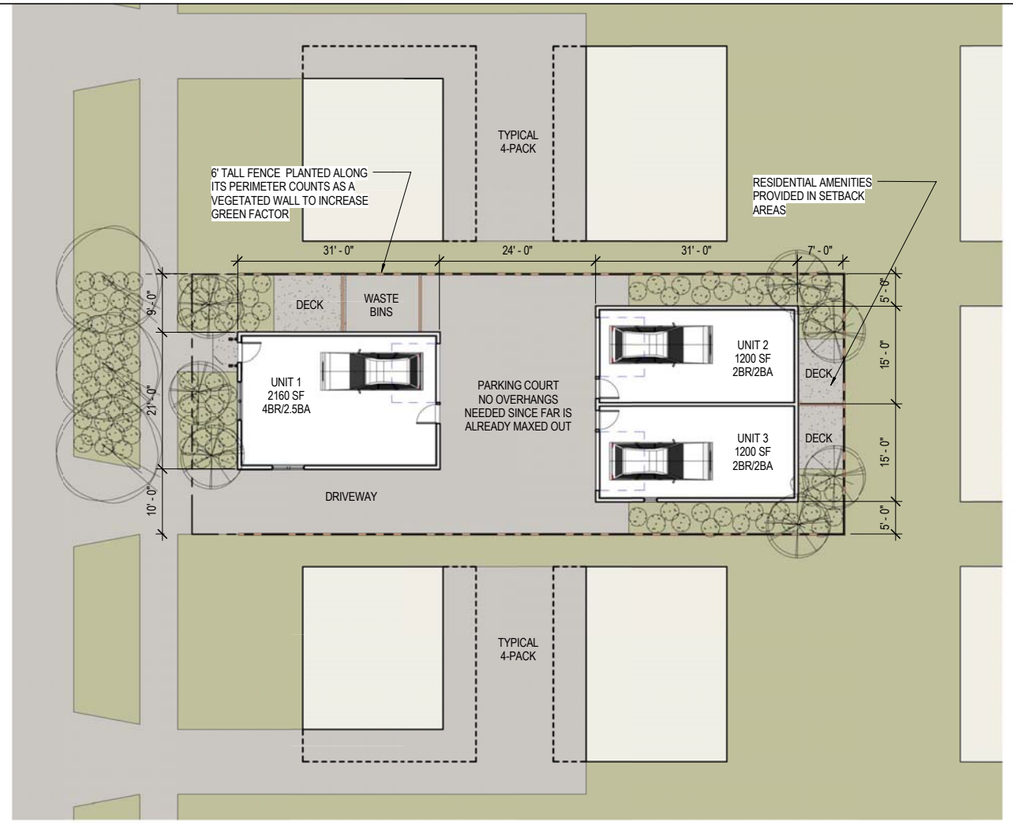
GATING MECHANISMS:
1. Since L1 only allows a 1.1 FAR, this scheme can't get any bigger.

COST FACTORS:
1. This building is easier to construct than the heavily cantilevered version built under today's code.

EVALUATION:
1. At FAR 1.1 there is not enough development potential in the site to tempt builders to overhang the parking court.
2. While the parking court is improved, this scheme provides no quality open space for residents.
3. Green factor drives builders to maximize the two least costly strategies: a) Heavily landscape all available dirt, and; b) provide the remainder of green factor using vegetated walls. The result is: a) relatively unusable open space, and; b) a profusion of unmaintainable surfaces

GREEN FACTOR

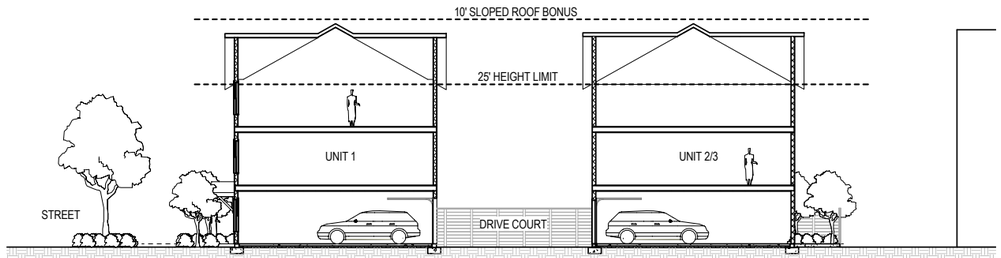
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1004	0.6	602.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENNIALS 2'+ AT MATURITY		1004	0.3	301.2
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	7	100	0.3	210.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		1350	0.7	945.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		0	0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1004	0.1	100.4
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		554	0.1	55.4
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2394.4
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.60**



SITE PLAN SCALE: 3/32" = 1'-0"

B1

CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**4000**
FAR	1.10
NUMBER OF UNITS	3
TOTAL GROSS SQUARE FOOTAGE	4743
NUMBER OF PARKING STALLS	3
TYPE OF PARKING	PRIVATE GARAGES
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	240
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	40.0%
BUILDING HEIGHT/ROOF PEAK	35'-0"
IMPERVIOUS SURFACE	72.0%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1333SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1004	0.6	602.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1004	0.3	301.2
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	7	100	0.3	210.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		1350	0.7	945.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		0	0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1004	0.1	100.4
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		554	0.1	55.4
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2394.4
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.60**

B1 – NEO 4 PACK

L1	40'X100'	MID-BLOCK	BLACK HAT	NO DEPARTURES

ENABLING FACTORS:
1. The lack of an open space requirement makes it very easy for this scheme to maximize FAR without building over the parking court

GATING MECHANISMS:
1. Since L1 only allows a 1.1 FAR, this scheme can't get any bigger.

COST FACTORS:
1. This building is easier to construct than the heavily cantilevered version built under today's code.

EVALUATION:
1. At FAR 1.1 there is not enough development potential in the site to tempt builders to overhang the parking court.
2. While the parking court is improved, this scheme provides no quality open space for residents.
3. Green factor drives builders to maximize the two least costly strategies: a) Heavily landscape all available dirt, and; b) provide the remainder of green factor using vegetated walls. The result is: a) What little open space exists is unusable, and; b) a profusion of un-maintainable surfaces

CONCLUSIONS:
1. Green factor is easily gamed using vegetated walls. A 50% maximum impervious area requirement should be added to press projects like these toward permeable paving & green roofs.
2. The proposed residential amenity standard is too permissive. A minimum open space requirement is needed to prevent the ground plane from being used solely for parking and building mass.
3. The primary gating mechanism the code offers for this scale of project is the FAR maximum.

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MAXIMIZED 4-PACK

L3	40' x 100'	MID-BLOCK
BLACK HAT	NO DEPARTURES	

B2

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	4000
FAR	1.42
NUMBER OF UNITS	4
TOTAL GROSS SQUARE FOOTAGE	6097
NUMBER OF PARKING STALLS	3
TYPE OF PARKING	PRIVATE GARAGES
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	555
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	54.9%
BUILDING HEIGHT/ROOF PEAK	39'-1"
IMPERVIOUS SURFACE	81.6%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1000SF

ENABLING FACTORS:
1. The code is intended to create a 3' maximum overhang for the parking aisle between structures. This intent is subverted by joining the buildings into one structure.
2. Setback averaging helps this scheme. A generous setback at the bridging structure in the parking court allows the rest of the structures to stay at a 5' setback, maximizing building frontage & development potential.
3. Residential amenities are easily fit into the narrow setbacks.
4. The 20% parking reduction is used to create a fourth unit that could not otherwise find a parking space.

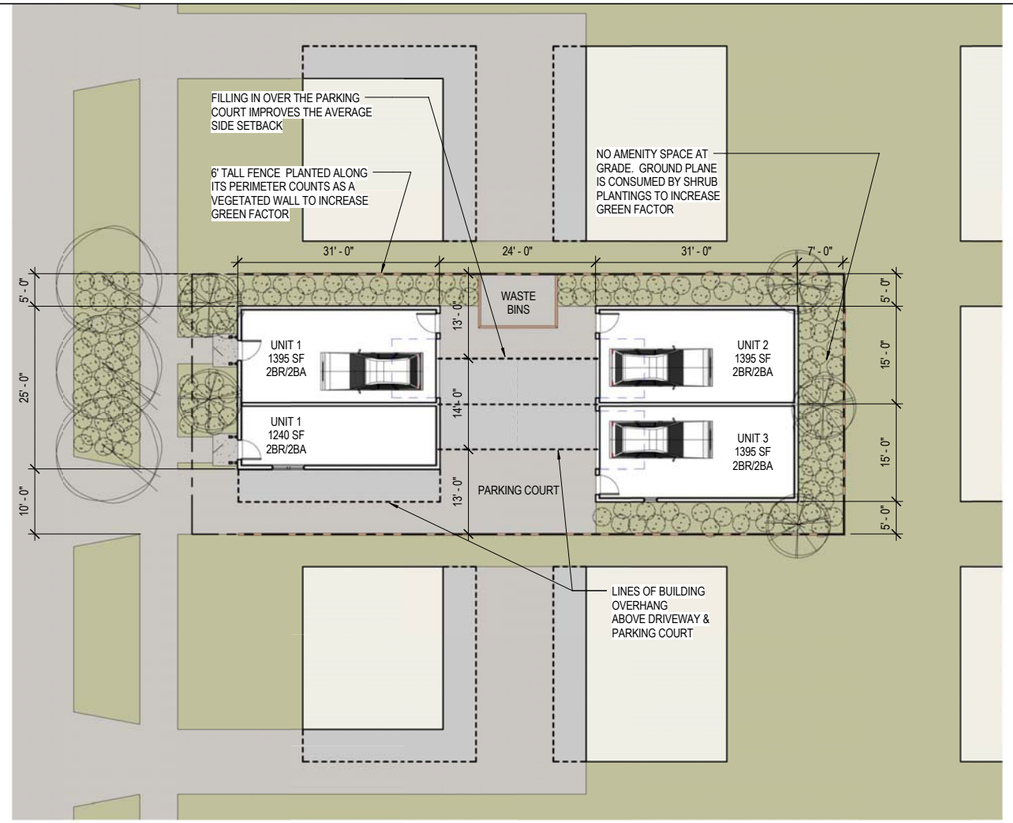
GATING MECHANISMS:
1. This scheme naturally peaks out at about 1.4 FAR, which is the set limit for the zone.

COST FACTORS:
1. Joining the buildings into one structure will trigger slightly more expensive fire-rated construction standards (SBC).

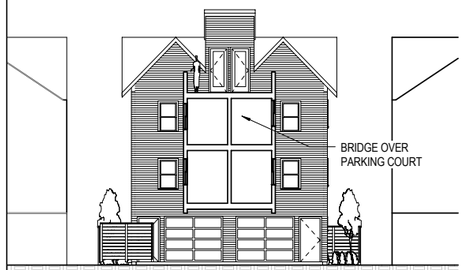
EVALUATION:
1. An FAR of 1.4 appears to be too high for three story ground-based housing on a small site. The lack of an open space requirement permits very high levels of lot coverage and impervious surface.
2. Green factor drives builders to maximize the two least costly strategies: a) Heavily landscape all available dirt, and; b) provide the remainder of green factor using vegetated walls. As a result, what little open space exists is relatively unusable, and the projects feature a profusion of unmaintainable vertical surfaces.
3. Residential amenities are easily satisifed by the provision of relatively meaningless bits of open space.

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1286	0.6	771.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1286	0.3	358.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	7	100	0.3	210.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		950	0.7	665.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		0	0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1286	0.1	128.6
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		665	0.1	66.5
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2407.5
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.60**



SITE PLAN SCALE: 3/32" = 1'-0"



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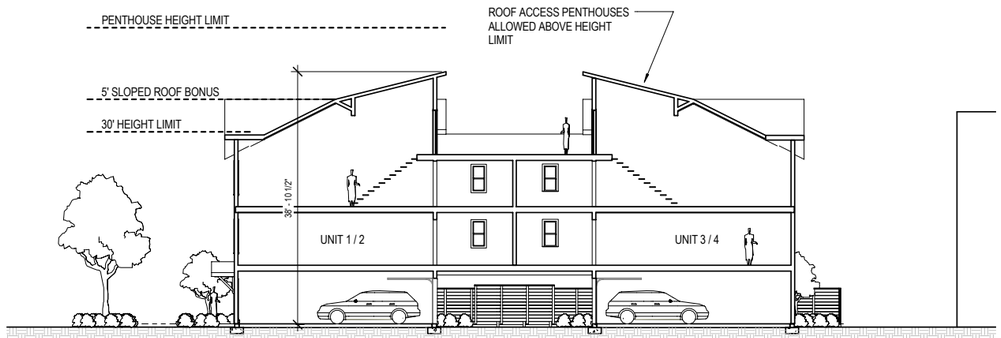

LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**4000**
FAR	1.42
NUMBER OF UNITS	4
TOTAL GROSS SQUARE FOOTAGE	6097
NUMBER OF PARKING STALLS	3
TYPE OF PARKING	PRIVATE GARAGES
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	555
GREEN FACTOR (attach calculations)	0.64
LOT COVERAGE (SF)	54.9%
BUILDING HEIGHT/ROOF PEAK	39'-1"
IMPERVIOUS SURFACE	81.6%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1000SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1286	0.6	771.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1286	0.3	385.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	7	100	0.3	210.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		950	0.7	665.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		0	0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1286	0.1	128.6
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		665	0.1	66.5
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2407.5
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.60**

B2 – MAXIMIZED 4 PACK

L3	40'X100'	MID-BLOCK	BLACK HAT	NO DEPARTURES

ENABLING FACTORS:
1. The code is intended to create a 3' maximum overhang for the parking aisle *between* structures. This clause is subverted by joining the buildings into one structure.
2. Setback averaging helps this scheme. A generous setback at the bridging structure in the parking court allows the rest of the structures to remain at a 5' setback, maximizing building frontage & development potential.
3. Residential amenities areas are easily fit into the narrow setbacks.
4. The 20% parking reduction is used to create a fourth unit that could not otherwise find a parking space.

GATING MECHANISMS:
1. This scheme naturally peaks out at about 1.4 FAR, which is the set limit for the zone.

COST FACTORS:
1. Joining the buildings into one structure will trigger slightly more expensive fire-rated construction standards (SBC).

EVALUATION:
1. High FAR, permissive standards and loopholes in the code language allow a building massing that is bulkier and even more claustrophobic than the 4-pack possible under today's code..

CONCLUSIONS:
1. Green factor is easily gamed using vegetated walls. A 50% maximum impervious area requirement should be added to press projects like these toward permeable paving & green roofs.
2. The proposed residential amenity standard is too permissive. A minimum open space requirement is needed to prevent the ground plane from being used solely for parking and building mass.
3. An FAR of 1.4 is too high to be allowed prescriptively for ground based housing.
4. The use of the 20% parking reduction should be tied to the size/affordability of the unit it creates.
5. Side setback averaging has the perverse effect of encouraging builders to cover the parking court.

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DOUBLE LOADED CARPORT

L3	60' x 120'	MID-BLOCK
BLACK HAT	NO DEPARTURES	

B3

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	7200
FAR	1.40
NUMBER OF UNITS	8
TOTAL GROSS SQUARE FOOTAGE	10876
NUMBER OF PARKING STALLS	8
TYPE OF PARKING	ON-GRADE
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	564
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	62.2%
BUILDING HEIGHT/ROOF PEAK	35'-0"
IMPERVIOUS SURFACE	85.4%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 900SF

ENABLING FACTORS:
1. The code is intended to create a 3' maximum overhang for the parking aisle between structures. The intent of the code is subverted by joining the buildings into one structure.
2. Automobiles are housed in carports because unenclosed space does not count as FAR.
3. Residential amenities are easily fit into the narrow setbacks.

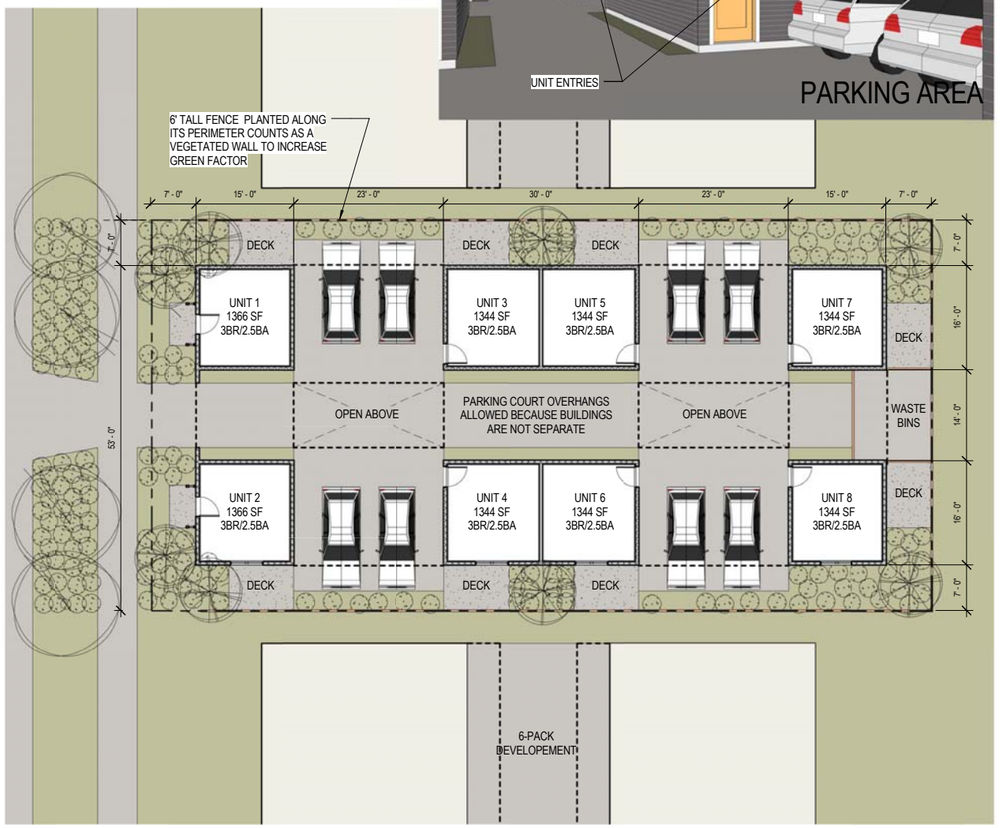
GATING MECHANISMS:
1. This scheme attempts to fill all of the available land inside of the 7' average setback. Ultimately is it limited by the FAR maximum, and by automobile maneuvering requirements.

COST FACTORS:
1. Joining the buildings into one structure will trigger slightly more expensive fire-rated construction standards (SBC).

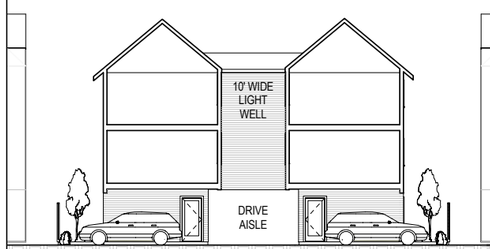
EVALUATION:
1. An FAR of 1.4 may to be too high for three story ground-based housing. The lack of an open space requirement permits very high levels of lot coverage and impervious surface. Green factor and residential amenities do not provide a meaningful gating mechanism.
2. Green factor drives builders to maximize the two least costly strategies: a) Heavily landscape all available dirt, and; b) provide the remainder of green factor using vegetated walls. As a result, what little open space exists is relatively unusable, and the projects feature a profusion of unmaintainable vertical surfaces.
3. This scheme provides 2 more units and about 12% more saleable floor area than a comprable 1.4 FAR six-pack configuration.

GREEN FACTOR

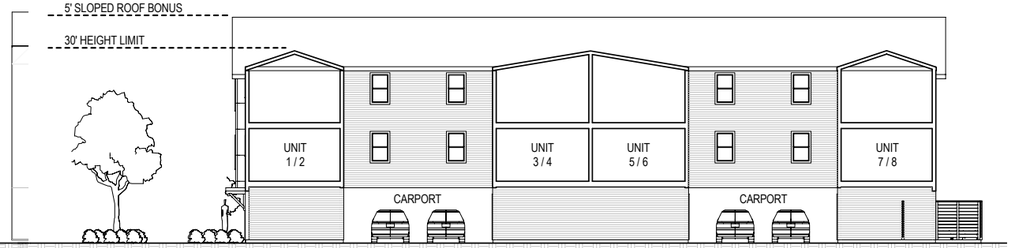
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1746	0.6	1047.6
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENNIALS 2' + AT MATURITY		1746	0.3	523.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	8	100	0.3	240.0
NUMBER OF MEDIUM/LARGE TREES	4	150	0.4	240.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS (1800 sf on fence + 1100 sf on sides of building)		2900	0.7	2030.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1746	0.1	174.6
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				4350.0
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**



SITE PLAN SCALE: 3/32" = 1'-0"



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

STREET VIEW

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	1.40
NUMBER OF UNITS	8
TOTAL GROSS SQUARE FOOTAGE	10876
NUMBER OF PARKING STALLS	8
TYPE OF PARKING	ON-GRADE
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	564
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	62.2%
BUILDING HEIGHT/ROOF PEAK	35'-0"
IMPERVIOUS SURFACE	85.4%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 900SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1746	0.6	1047.6
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1746	0.3	523.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	8	100	0.3	240.0
NUMBER OF MEDIUM/LARGE TREES	4	150	0.4	240.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS (1800sf of fence + 1100 sf on sides of building)		2900	0.7	2030.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1746	0.1	174.6
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				4350.0
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**

B3 – DOUBLE LOADED CARPORT

L3	60'X120'	MID-BLOCK	BLACK HAT	NO DEPARTURES

ENABLING FACTORS:

1. The code is intended to create a 3' maximum overhang for the parking aisle between structures. The intent of the code is subverted by joining the buildings into one structure.
2. Automobiles are housed in carports because unenclosed space does not count as FAR.
3. Residential amenities are easily fit into the narrow setbacks.

GATING MECHANISMS:

1. This scheme attempts to fill all of the available land inside of the 7' average setback. Ultimately is it limited both by the FAR and automobile maneuvering requirements.

COST FACTORS:

1. Joining the buildings into one structure will trigger slightly more expensive fire-rated construction standards (SBC).

EVALUATION:

1. High FAR, permissive standards and loopholes in the code language allow a building massing that is bulkier and even more claustrophobic than the 4-pack possible under today's code.
2. Green factor drives builders to maximize the two least costly strategies: a) Heavily landscape all available dirt, and; b) Provide the remainder of green factor using vegetated walls. The result is: a) What little open space exists is unusable, and; b) a profusion of un-maintainable surfaces.
3. This scheme provides 2 more units and about 12% more saleable floor area than a conventional six-pack

CONCLUSIONS:

1. Green factor is easily gamed using vegetated walls. A 50% maximum impervious area requirement should be added to press projects like these toward permeable paving & green roofs.
2. The proposed residential amenity standard is too permissive. A minimum open space requirement is needed to prevent the ground plane from being used solely for parking and building mass.
3. An FAR of 1.4 is too high to be allowed prescriptively for ground based housing.
4. The use of the 20% parking reduction should be tied to the size/affordability of the unit it creates.
5. Side setback averaging has the perverse effect of encouraging builders to cover the parking court.

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10 UNIT APARTMENT

L3	60' x 120'	MID-BLOCK
BLACK HAT	NO DEPARTURES	

PROJECT DATA

COMPONENT		AMOUNT
LOT SIZE		7200
FAR		1.35
NUMBER OF UNITS		10
TOTAL GROSS SQUARE FOOTAGE		10439
NUMBER OF PARKING STALLS		10
TYPE OF PARKING	Surface lot under Bldg.	
OPEN SPACE TOTAL		520
OPEN SPACE AT GRADE		520
OPEN SPACE ABOVE GRADE		0
AMENITY SPACE SQUARE FOOTAGE		520
GREEN FACTOR (attach calculations)		0.60
LOT COVERAGE (SF)		62.6%
BUILDING HEIGHT/ROOF PEAK		30'-0"
IMPERVIOUS SURFACE		62.6%
OPEN SPACE/LOT SIZE RATIO		7.2%
UNIT DENSITY (UNITS PER LOT AREA)	1 unit per:	720 SF

ENABLING FACTORS:

1. Overhang limits on Auto courts do not apply to a single building scenario
2. Common open space allows the lack of balconies or ground related unit entries
3. Impervious surface area reduces by the use of pervious paving wherever possible

GATING MECHANISMS:

1. The surface parking is very desirable to control costs but limits the number of units because of the space required and the development standards for parking lots. With a parking reduction the same building would likely hold more smaller units.
2. Building code would make units with only side facing exposure difficult because of limitations on openings
3. Scheme could be difficult to adapt to sloping conditions.
4. Green Factor not achieved as shown.

COST FACTORS:

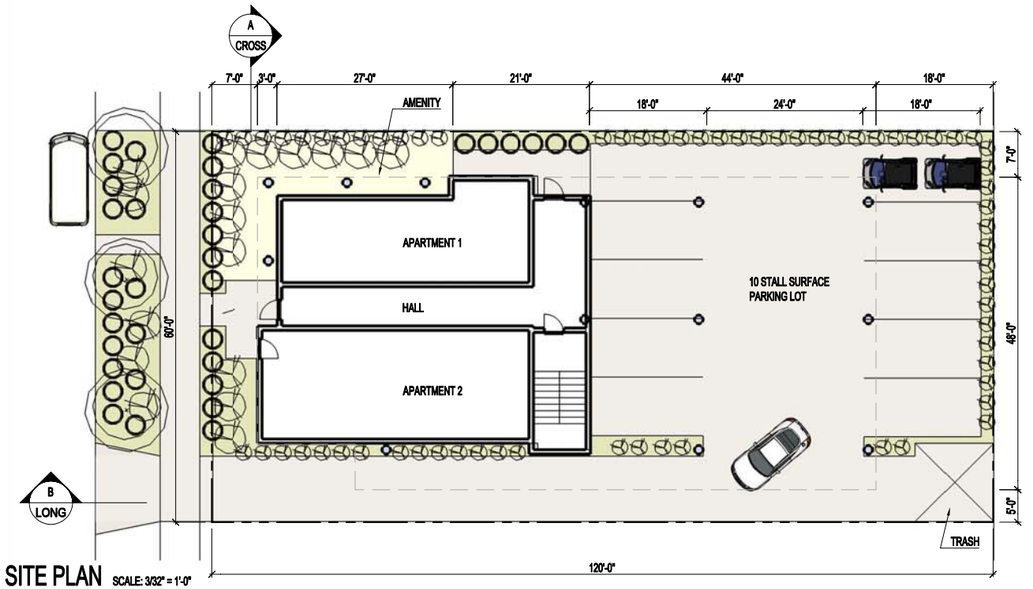
1. Surface parking is a major cost control decision
2. Three story wood construction is very cost effective and 10 unit max. avoids fair housing issues to cut costs further

EVALUATION:

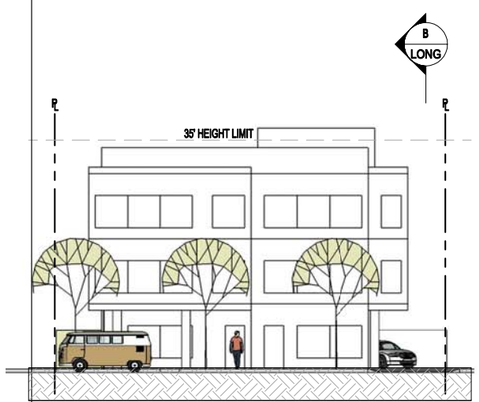
1. This green factor relies heavily on vegetated walls which given too much weight in the equation. Vegitated walls have a poor survival rate and, while they may be appropiate in some designs should not be artificially encouraged to this degree.
2. Units are larger than typical in the market because FAR allows more development than can be cheaply parked
3. Boxy massing will not conform to many neighborhoods design preferences for a "traditional" look.

GREEN FACTOR

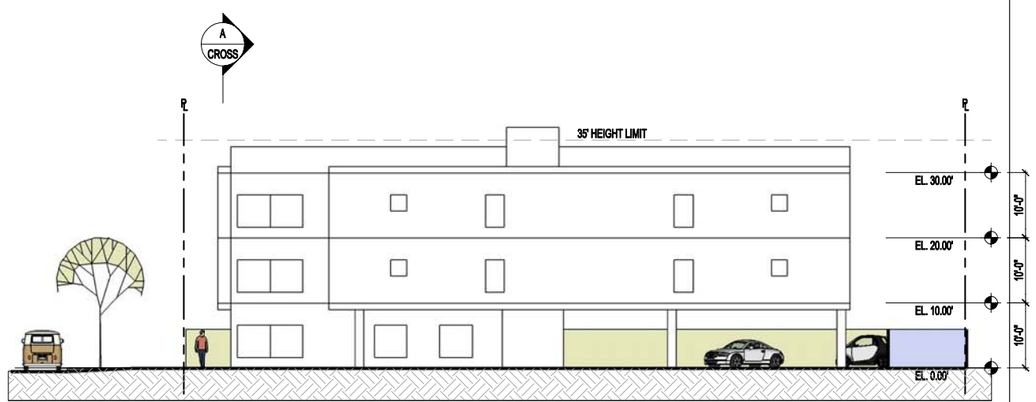
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W 24" OF SOIL OR GREATER		1355	0.6	813.0
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1355	0.1	135.5
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1000	0.3	300.0
NUMBER OF SMALL TREES	1	50	0.3	15.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		3000	0.7	2100.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		0	0.1	0.0
GREEN FACTOR NUMERATOR				4298.5
PARCEL SIZE				7200
TOTAL GREEN FACTOR				0.60



SITE PLAN SCALE: 3/32" = 1'-0"

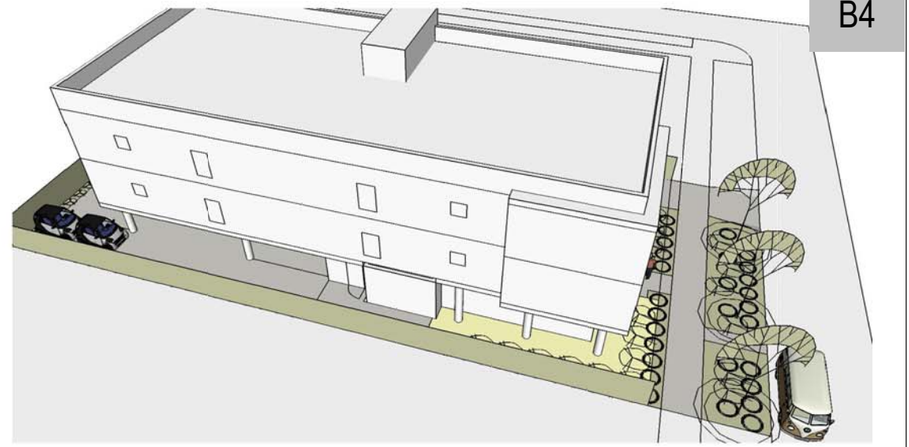


CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

B4



BIRDS EYE VIEW

STREET VIEW

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	7200
LOT SIZE	1.35
FAR	10
NUMBER OF UNITS	10439
TOTAL GROSS SQUARE FOOTAGE	10
NUMBER OF PARKING STALLS	Surface lot under Bldg.
TYPE OF PARKING	520
OPEN SPACE TOTAL	520
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	520
AMENITY SPACE SQUARE FOOTAGE	0.60
GREEN FACTOR (attach calculations)	62.6%
LOT COVERAGE (SF)	30'-0"
BUILDING HEIGHT/ROOF PEAK	62.6%
IMPERVIOUS SURFACE	7.2%
OPEN SPACE/LOT SIZE RATIO	1 UNIT /720 SF
UNIT DENSITY (UNITS PER LOT AREA)	7200

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1355	0.6	813.0
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1355	0.1	135.5
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1000	0.3	300.0
NUMBER OF SMALL TREES	1	50	0.3	15.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		3000	0.7	2100.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		0	0.1	0.0
GREEN FACTOR NUMERATOR				4298.5
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**

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B4 -10 UNIT APARTMENT

L3	60'X120'	MID-BLOCK	BLACK HAT	NO DEPARTURES

ENABLING FACTORS:
1. Overhang limits on auto courts do not apply to a single building scenario
2. Common open space allows the lack of decks or ground related unit entries
3. Impervious surface area reduces by the use of pervious paving wherever possible

GATING MECHANISMS:
1. The surface parking strategy limits the number of units because of the space required
2. Building code would make units with only side facing exposure difficult because of limitations on openings.
3. This scheme could be difficult to adapt to sloping conditions.
4. The 20% parking reduction is not used, since an 11th unit would trigger the fair housing act & become very expensive.

COST FACTORS:
1. A 10 unit building stays below the threshold of the fair housing act, avoiding the cost of accessible design.

EVALUATION:
1. To satisfy green factor this project relies heavily on vegetated walls. While they may be appropriate in some cases, they should not be artificially encouraged to this degree.
2. Units are larger than typical in the market because FAR allows more development than can be cheaply parked.
3. Boxy massing may not conform to many neighborhoods design preferences for a "traditional" look.

CONCLUSION:
1. Green factor is easily gamed using vegetated walls. A 50% maximum impervious area requirement should be added to press projects like these toward permeable paving & green roofs.
2. The proposed residential amenity standard is too permissive. A minimum open space requirement is needed to prevent the ground plane from being used solely for parking and building mass.
3. A surface parking strategy leads to a fairly large apartment size.

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24 UNIT APARTMENT

L3	60' x 120'	MID-BLOCK
BLACK HAT	NO DEPARTURES	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	7200
FAR	1.88
NUMBER OF UNITS	24
TOTAL GROSS SQUARE FOOTAGE	14570
NUMBER OF PARKING STALLS	0
TYPE OF PARKING	None
OPEN SPACE TOTAL	1360
OPEN SPACE AT GRADE	1360
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	1360
GREEN FACTOR (attach calculations)	0.58
LOT COVERAGE (SF)	68.3%
BUILDING HEIGHT/ROOF PEAK	30'-0"
IMPERVIOUS SURFACE	74.0%
OPEN SPACE/LOT SIZE RATIO	18.9%
UNIT DENSITY (UNITS PER LOT AREA)	1 unit per: 300 SF

ENABLING FACTORS:

1. Scheme assumes FAR bonus for affordable housing and Station Area Parking reductions but intentionally does not take advantage of available height bonus
2. Common open space allows the lack of balconies or ground related unit entries

GATING MECHANISMS:

1. Max FAR of 2.0 is not achievable but the added cost of a 4th story would not justify the small amount of SF that could be added in a taller building.
2. Building code would make units with only side facing exposure difficult because of limitations on openings
3. Scheme could be difficult to adapt to sloping conditions.

COST FACTORS:

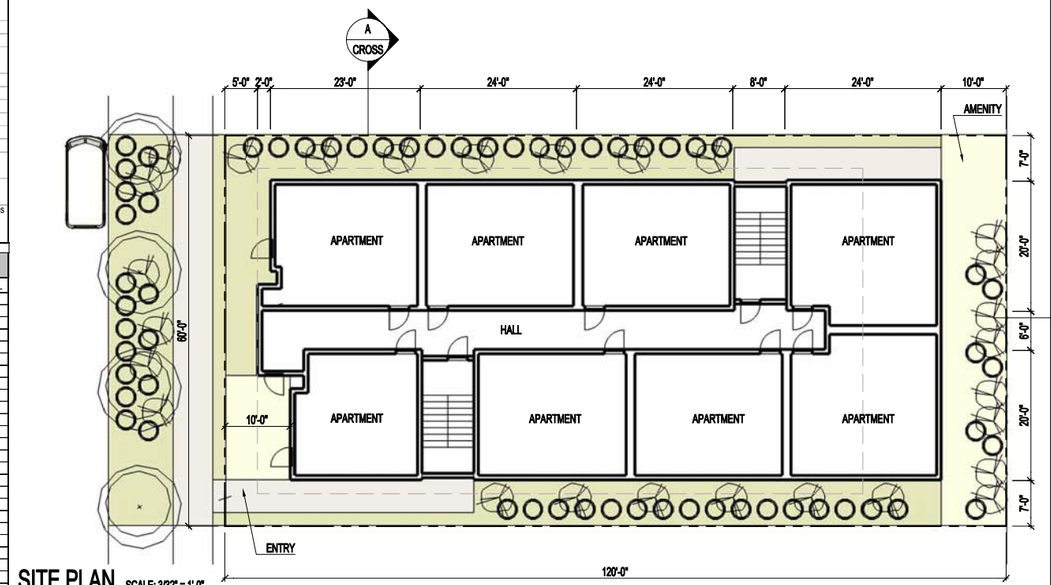
1. Construction cost is controlled by keeping building at 3 stories despite a small amount of lost FAR
2. Lack of parking is a significant cost savings

EVALUATION:

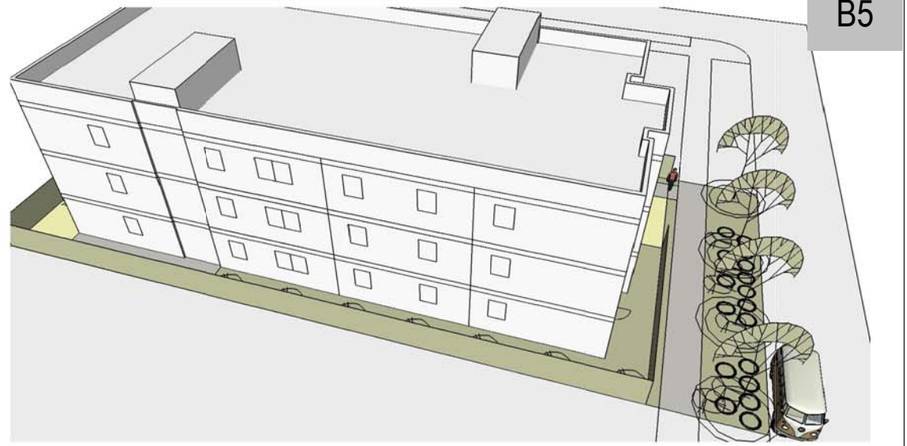
1. Green factor surprisingly easy to achieve in a building that appears to have little landscape area. Lack of paving is the primary reason for this.
2. Boxy massing will not conform to many neighborhoods design preferences for a "traditional" look. Forced articulation is inconsistent with actual historical examples of this type which are very simple and tend to be well liked.
3. While most would consider this a Black Hat scheme it is actually very similar to many well liked historic apartment buildings and could be entirely appropriate on dense urban center sites or in neighborhoods with a mix of housing types and good transi

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W 24" OF SOIL OR GREATER		2642	0.6	1585.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2642	0.1	264.2
SHRUBS OR PERENINIALS 2'+ AT MATURITY		2400	0.3	720.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	4	150	0.4	240.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		1560	0.7	1092.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		200	0.5	100.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		2400	0.1	240.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		0	0.1	0.0
GREEN FACTOR NUMERATOR				4291.4
PARCEL SIZE				7200
TOTAL GREEN FACTOR				0.60

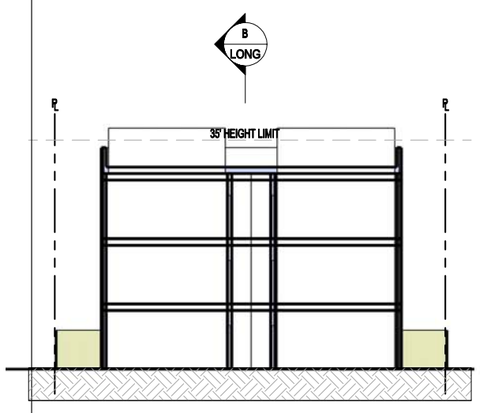


SITE PLAN SCALE: 3/32" = 1'-0"

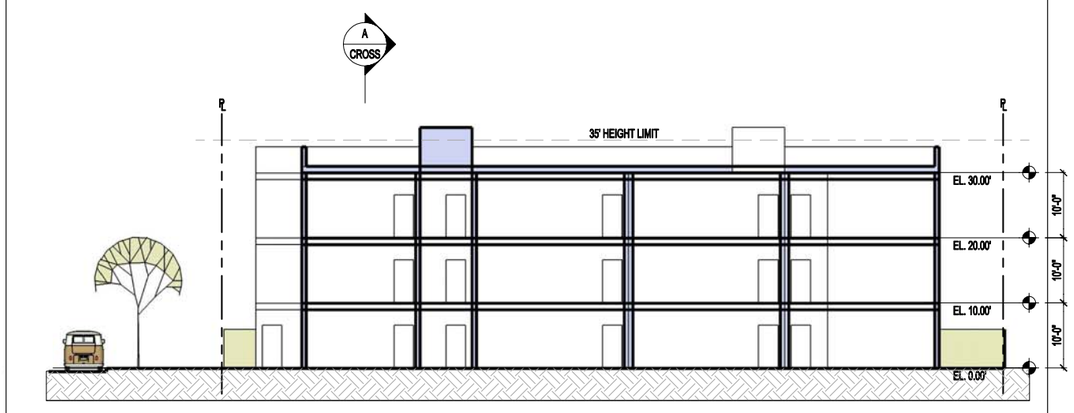


BIRDS EYE VIEW

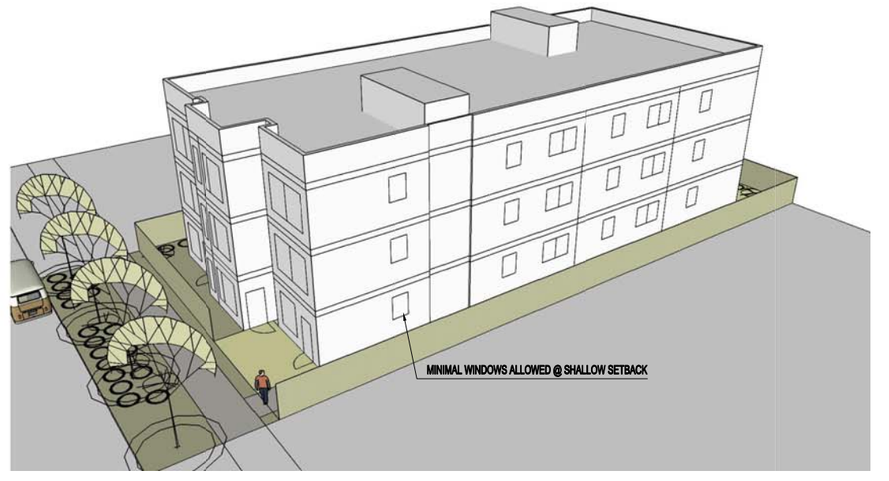
STREET VIEW



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	7200
LOT SIZE	1.88
FAR	24
NUMBER OF UNITS	14570
TOTAL GROSS SQUARE FOOTAGE	0
NUMBER OF PARKING STALLS	None
TYPE OF PARKING	1360
OPEN SPACE TOTAL	1360
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	1360
AMENITY SPACE SQUARE FOOTAGE	0.60
GREEN FACTOR (attach calculations)	66.9%
LOT COVERAGE (SF)	30'-0"
BUILDING HEIGHT/ROOF PEAK	67%
IMPERVIOUS SURFACE	18.9%
OPEN SPACE/LOT SIZE RATIO	1UNIT /300 SF
UNIT DENSITY (UNITS PER LOT AREA)	**7200**

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2642	0.6	1585.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2642	0.1	264.2
SHRUBS OR PERENINIALS 2'+ AT MATURITY		2400	0.3	720.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	4	150	0.4	240.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		1560	0.7	1092.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		200	0.5	100.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		2400	0.1	240.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		0	0.1	0.0
GREEN FACTOR NUMERATOR				4291.4
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**

B5 - 24 UNIT APARTMENT

L3	60'X120'	MID-BLOCK	BLACK HAT	NO DEPARTURES

ENABLING FACTORS:

1. Scheme assumes FAR bonus for affordable housing and Station Area Parking reductions but intentionally does not take advantage of available height bonus.
2. Common open space allows the lack of balconies or ground related unit entries.

GATING MECHANISMS:

1. Max FAR of 2.0 is not achievable but the added cost of a 4th story would not justify the small amount of SF that could be added in a taller building.
2. Building code would make units with only side facing exposure difficult because of limitations on openings.
3. Scheme could be difficult to adapt to sloping conditions.

COST FACTORS:

1. Construction cost is controlled by keeping building at 3 stories despite a small amount of lost FAR
2. Lack of parking is a significant cost savings.

EVALUATION:

1. Green factor surprisingly easy to achieve in a building that appears to have so little landscape area. Lack of paving is the primary reason for this.
2. Boxy massing will not conform to many neighborhoods design preferences for a "traditional" look. Forced articulation is inconsistent with actual historical examples of this type which are very simple and tend to be well liked.
3. While many would consider this a Black Hat scheme it is actually very similar to many well liked historic apartment buildings and could be entirely appropriate on dense urban center sites or in neighborhoods with a mix of housing types and good transit access.

CONCLUSIONS:

1. Green factor is easily gamed using vegetated walls. A 50% maximum impervious area requirement should be added to press projects like these toward permeable paving & green roofs.
2. The proposed residential amenity standard is too permissive. A minimum open space requirement is needed to prevent the ground plane from being used solely for parking and building mass.

White Hat Schemes

Scheme	Title	Zone	Lot Size	Access	Departures
W1	Cottage Cluster	L1	60X120	Alley	None
W2	Raised Central Courtyard	L1	40x100	Mid-Block	None
W3	Townhomes with Mews	L3	60x120	Mid-Block	None
W4	Infill Behind Existing SF House	LDT	40x100	Mid-Block	Density
W5	Garden Courtyard	L1	40x100	Mid-Block	None
W6	Mixed Unit Condominium	L1	50x100	Mid-Block	Density
W7	Townhouse Infill	L3	40x91	Through	Many
W8	Courtyard Flats	L3	60x120	Mid-Block	Height
W9	Courtyard Flats	L3	50x100	Mid-Block	Height
W10	Courtyard Townhomes	L3	50x100	Mid-Block	Height
W11	21 Unit Workforce Housing	L3	60x120	Mid-Block	None
W12	Rowhouses	L3	60x100	Mid-Block	Many

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COTTAGE CLUSTER

L1	60' x 120'	ALLEY
WHITE HAT	NO DEPARTURES	

PROJECT DATA

COMPONENT		AMOUNT
LOT SIZE		7200
FAR		0.93
NUMBER OF UNITS		5
TOTAL GROSS SQUARE FOOTAGE		7211
NUMBER OF PARKING STALLS		6
TYPE OF PARKING	Nose in parking off Alley	
OPEN SPACE TOTAL		1150
OPEN SPACE AT GRADE		1150
OPEN SPACE ABOVE GRADE		0
AMENITY SPACE SQUARE FOOTAGE		1150
GREEN FACTOR (attach calculations)		0.63
LOT COVERAGE (SF)		38.5%
BUILDING HEIGHT/ROOF PEAK		33'-0"
IMPERVIOUS SURFACE		51.0%
OPEN SPACE/LOT SIZE RATIO		16.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 unit per:	1440 SF

ENABLING FACTORS:

1. This scheme mixes elements of the cottage standards with multifamily townhouse standards.
2. Common open space in lieu of private provides far better amenity and community space.
3. Alley access is essential, otherwise the parking and vehicle circulation eats up too much site area.

GATING MECHANISMS:

1. FAR is self limiting and can only approach 1.0 at best. The scheme would probably not pencil on an L3 lot.
2. The scheme will not work well on lots less that 60' wide. It would work very well on larger lots or as a mirrored scheme on double lots
3. L1 density limit holds the scheme to 5 units and drives a developer to provide larger units rather than a variety of sizes. Increasing that limit would allow for more housing choices in this scheme.
4. This scheme was originally explored according to the cottage housing guidelines. However, cottage housing was too restrictive and the idea had to be transformed into townhouses in order to get enough FAR to make the scheme viable.

COST FACTORS:

1. Cost to build would be moderate to high. Free standing structures are inefficient compared to attached.
2. Ability to adapt easily to sloping sites could help reduce cost of excavation and soil import / export in some cases

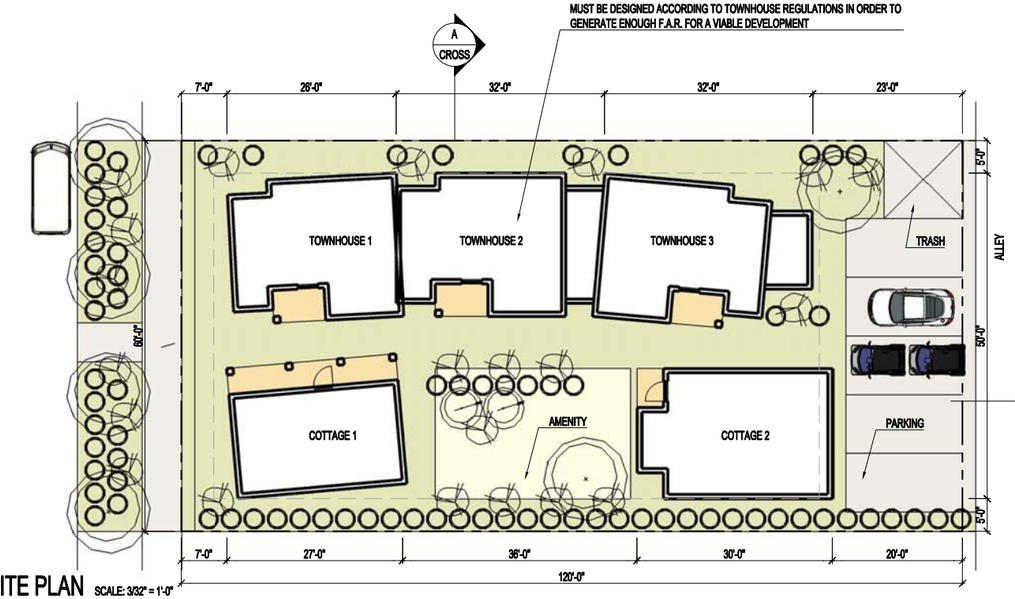
EVALUATION:

1. This scheme is intended to illustrate how a good cluster housing scheme combines freestanding and attached buildings to generate an interesting site plan and quality community space. It is a mix of site design ideas from the cottage housing section with buildings too large to qualify as cottages. The cottage housing regulations did not allow a viable project in terms of yield. Introducing taller, attached structures into the mix preserves more open space, generates a viable square footage yield an achieves many of the site design goals associated with cottage housing better than a pure cottage scheme.

GREEN FACTOR

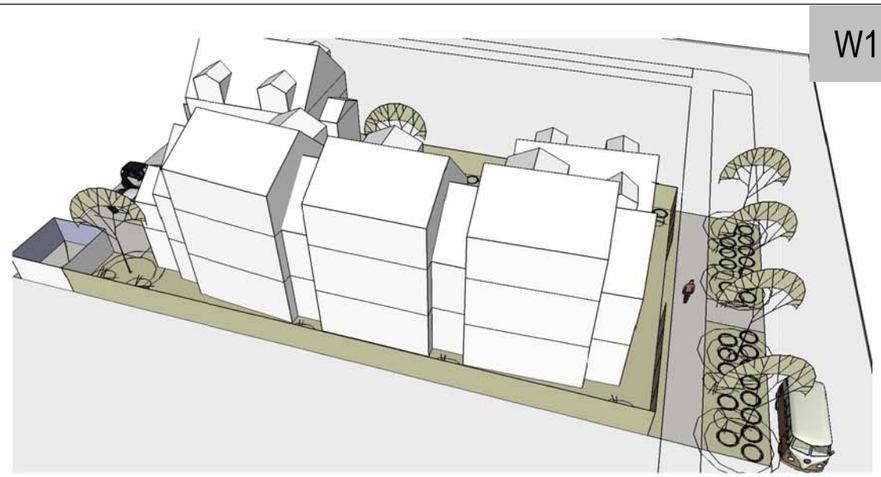
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2994	0.6	1796.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2994	0.1	299.4
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1520	0.3	456.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES	0	150	0.4	0.0
NUMBER OF LARGE TREES	6	200	0.4	480.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		960	0.7	672.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1520	0.1	152.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION		100	0.1	10.0
GREEN FACTOR NUMERATOR				4564.8
PARCEL SIZE				7200
TOTAL GREEN FACTOR				0.63

THIS CLUSTER HOUSING SCHEME IS ROOTED IN COTTAGE HOUSING IDEAS BUT MUST BE DESIGNED ACCORDING TO TOWNHOUSE REGULATIONS IN ORDER TO GENERATE ENOUGH F.A.R. FOR A VIABLE DEVELOPMENT

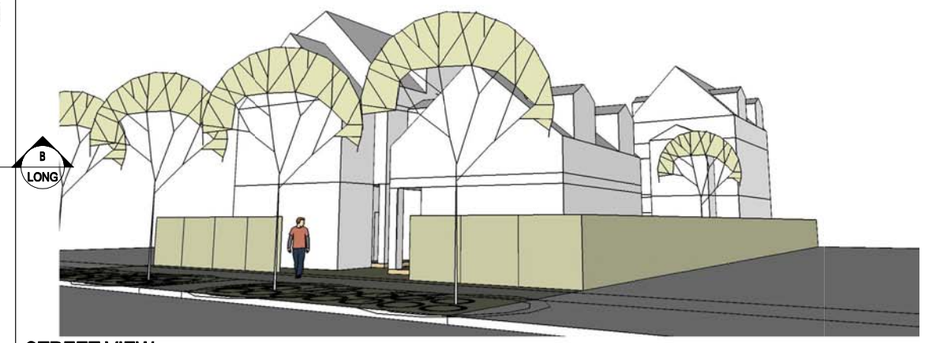


SITE PLAN SCALE: 3/32" = 1'-0"

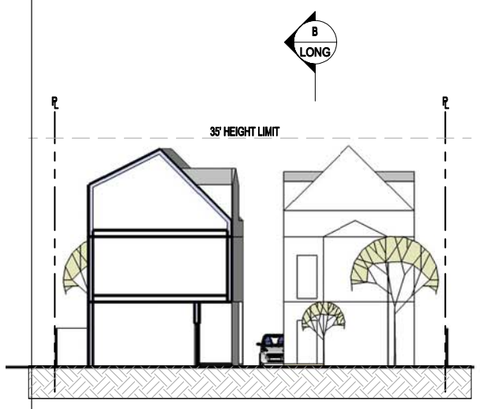
W1



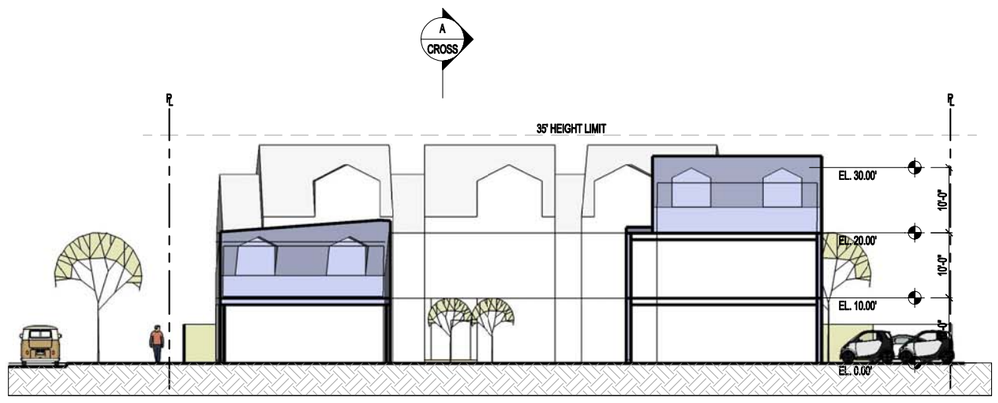
BIRDS EYE VIEW



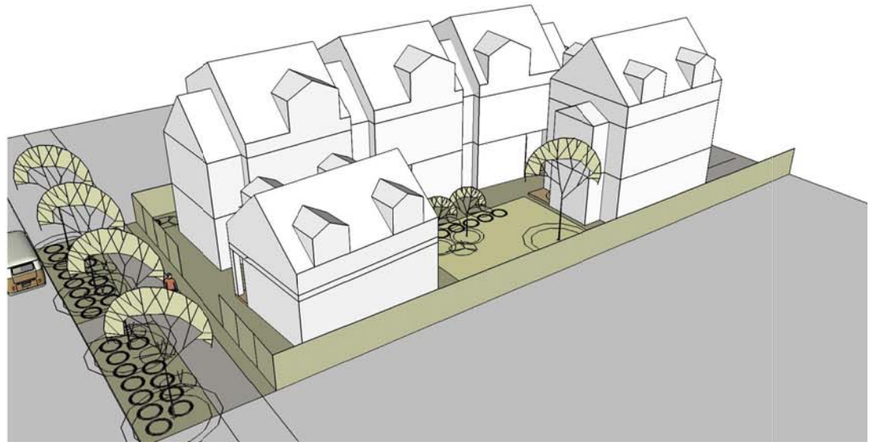
STREET VIEW



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	0.93
NUMBER OF UNITS	5
TOTAL GROSS SQUARE FOOTAGE	7211
NUMBER OF PARKING STALLS	6
TYPE OF PARKING	Nose in parking off Alley
OPEN SPACE TOTAL	1150
OPEN SPACE AT GRADE	1150
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	1150
GREEN FACTOR (attach calculations)	0.63
LOT COVERAGE (SF)	38.5%
BUILDING HEIGHT/ROOF PEAK	33'-0"
IMPERVIOUS SURFACE	51.0%
OPEN SPACE/LOT SIZE RATIO	16.0%
UNIT DENSITY (UNITS PER LOT AREA)	1UNIT/1440 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2994	0.6	1796.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2994	0.1	299.4
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1520	0.3	456.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES	0	150	0.4	0.0
NUMBER OF LARGE TREES	6	200	0.4	480.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		960	0.7	672.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1520	0.1	152.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION		100	0.1	10.0
GREEN FACTOR NUMERATOR				4564.8
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.63**

W1 - CLUSTER HOUSING

L1	60'X120'	ALLEY ACCESS	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:
1. Flexible setbacks allow a cottage housing style layout without using the CHD standards, which are too restrictive.
2. Common open space in lieu of private provides far better amenity and community space.
3. Alley access is essential; otherwise the parking and vehicle circulation eats up too much site area.

GATING MECHANISMS:
1. FAR is self limiting and can only approach 1.0 at best. The scheme would probably not pencil on an L3 lot.
2. The scheme will not work well on lots less that 60' wide. It would work very well on larger lots or as a mirrored scheme on double lots
3. L1 density limit holds the scheme to 5 units and drives a developer to provide larger units rather than a variety of sizes. Since the alley can park 6-7 cars, lifting the density limit would allow for more, smaller units.
4. This scheme was originally explored according to the cottage housing guidelines. However, cottage housing was too restrictive and the idea had to be transformed into townhouses in order to get enough FAR to make the scheme viable.

COST FACTORS:
1. Cost to build would be moderate to high. Free standing structures are inefficient compared to attached.
2. Small building modules adapt easily to sloping sites. This could help reduce cost of sitework in some cases.

EVALUATION:
1. This scheme is intended to illustrate how a good cluster housing scheme combines freestanding and attached buildings to generate an interesting site plan and quality community space. It is a mix of site design ideas from the cottage housing section with buildings too large to qualify as cottages. The cottage housing regulations did not allow a viable project in terms of yield. Introducing taller, attached structures into the mix preserves more open space, generates a viable square footage yield and achieves many of the site design goals associated with cottage housing better than a cottage scheme built under the CHD regulations.

CONCLUSIONS:
1. An FAR of around 0.9 to 1.0 is appropriate for this housing type. If FAR were to be set higher, any substantial open space would be consumed by buildings
2. At 1440sf per unit, these cottages are significantly bigger than the size originally intended by the CHD regulations. Removing the density limits in the Low L-zones will make cottage housing more viable, reduce the average unit size, & increase affordability

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RAISED CENTER COURTYARD

L1	40' x 100'	MID-BLOCK
WHITE HAT	NO DEPARTURES	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	4000
FAR	0.98
NUMBER OF UNITS	3
TOTAL GROSS SQUARE FOOTAGE	4224
NUMBER OF PARKING STALLS	3
TYPE OF PARKING	COVERED, PARITALLY BELOW GRADE
OPEN SPACE TOTAL	750
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	750
GREEN FACTOR (attach calculations)	0.64
LOT COVERAGE (SF)	62.5%
BUILDING HEIGHT/ROOF PEAK	23'-7"
IMPERVIOUS SURFACE	72.0%
OPEN SPACE/LOT SIZE RATIO	18.8%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1333SF

ENABLING FACTORS:
1. Under current code, this scheme would require departures for: Front & Rear setbacks, Lot Coverage, Building Depth, and Open Space.
2. The height exception for sub-grade parking is very helpful. This scheme would have height limit problems without it.

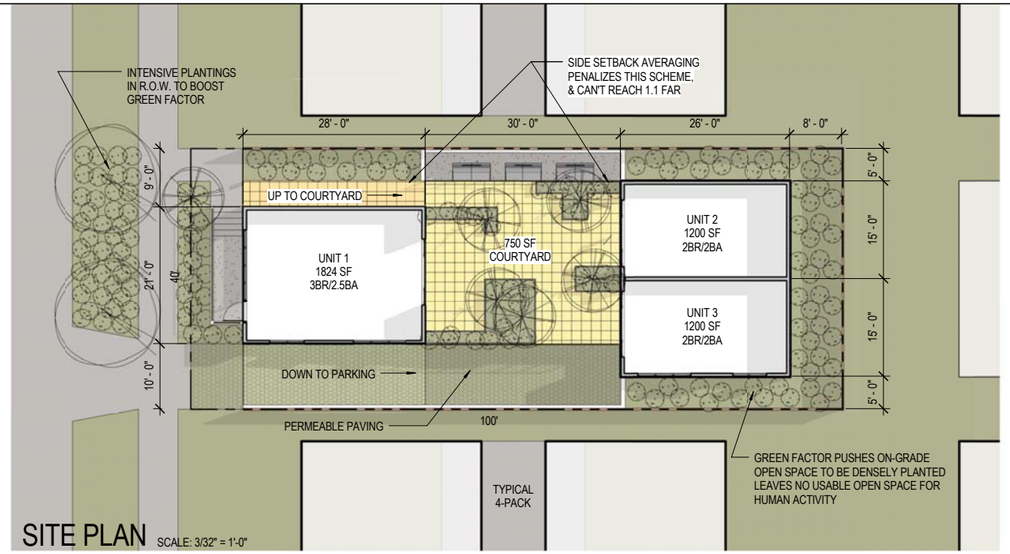
GATING MECHANISMS:
1. The scheme is a bit self limiting. In order to avoid the cost associated with true structured parking, the housing isn't built over the parking area. Once the necessary area has been allotted for parking, there's only so much area left over for buildings. Once that area has been filled out & built to three stories this scheme tops out at an FAR of about 1.1.

COST FACTORS:
1. The primary cost factor in this scheme is the recessed parking and the construction of the lid itself. However, since no FAR is used for parking, there is also a financial benefit.
2. The extent of green roof is driven by green factor. It would be a very costly element.
3. Using interior square footage for waste bin storage is a significant loss of saleable area.

EVALUATION:
1. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
2. Green Factor, as currently proposed, doesn't incentivize design choices that are appropriate for housing. Expensive, significant amenities like permeable paving and green roofs are meagerly rewarded, while heavy shrub landscaping & vegetated walls are highly encouraged.
3. Area required for waste bin storage is excessive & inflexible. The required dimensions are incompatible with parking dimensions & side setback areas. Many developers will choose to simply place them in the front yard.
4. Setback averaging penalizes this scheme. With a 5' side setback, this project could meet the 1.1 FAR allowed by the zone.

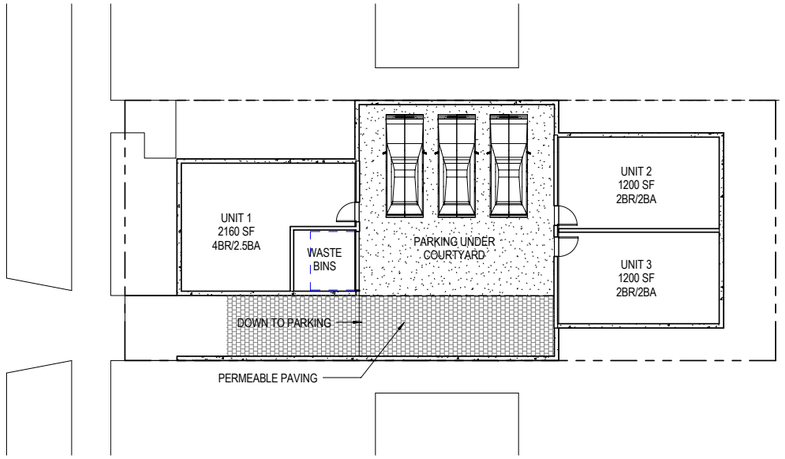
GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1335	0.6	801.0
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		967	0.3	290.1
NUMBER OF SMALL TREES	6	50	0.3	90.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES		150	0.4	0.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1480	0.7	1036.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		621	0.2	124.2
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1335	0.1	133.5
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		430	0.1	43.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2577.8
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.64**



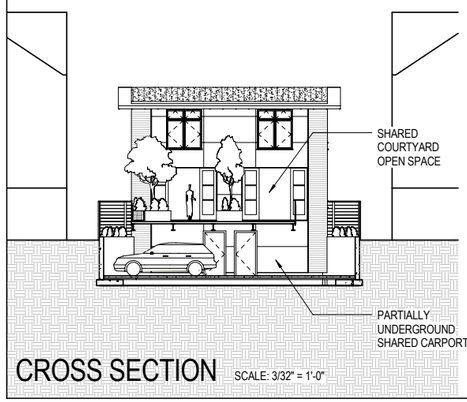
SITE PLAN SCALE: 3/32" = 1'-0"

COURTYARD VIEW

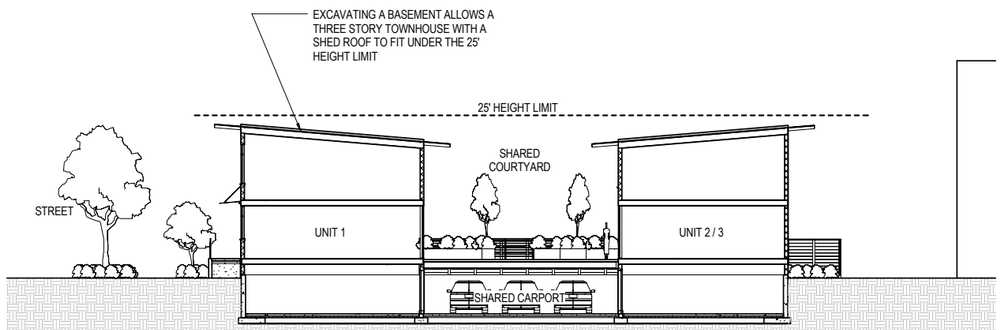


PARKING LEVEL PLAN SCALE: 3/32" = 1'-0"

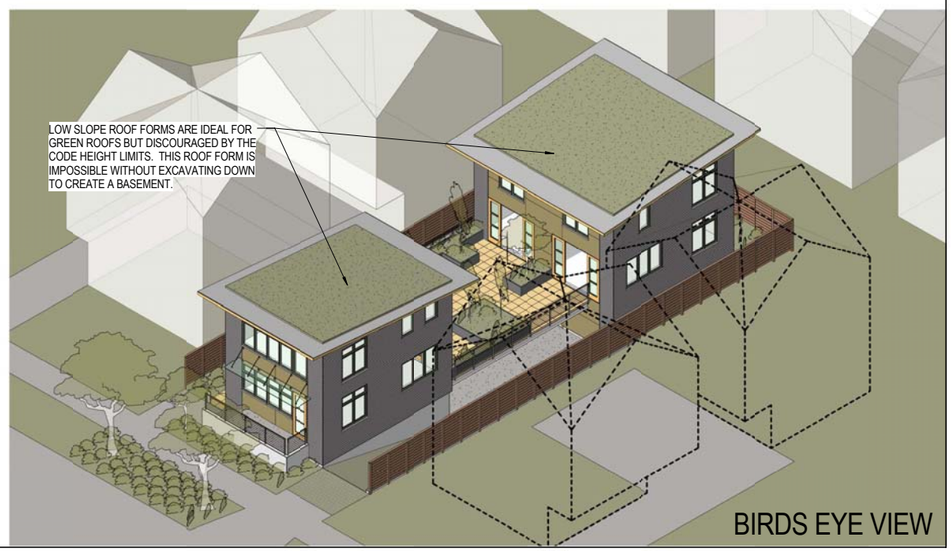
STREET VIEW



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	1.40
NUMBER OF UNITS	8
TOTAL GROSS SQUARE FOOTAGE	10876
NUMBER OF PARKING STALLS	8
TYPE OF PARKING	ON-GRADE
OPEN SPACE TOTAL	0
OPEN SPACE AT GRADE	0
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	564
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	62.2%
BUILDING HEIGHT/ROOF PEAK	35'-0"
IMPERVIOUS SURFACE	85.4%
OPEN SPACE/LOT SIZE RATIO	0.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 900SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1335	0.6	801.0
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		967	0.3	290.1
NUMBER OF SMALL TREES	6	50	0.3	90.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES		150	0.4	0.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1480	0.7	1036.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		621	0.2	124.2
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1335	0.1	133.5
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		430	0.1	43.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2577.8
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.64**

W2 – RAISED CENTER COURTYARD

L1	40'X100'	MID-BLOCK	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:

1. Under current code, this scheme would require departures for: Front & Rear setbacks, Lot Coverage, Building Depth, and Open Space
2. The height exception for sub-grade parking is very helpful. This scheme would have height limit problems without it.

GATING MECHANISMS:

1. The scheme is a bit self limiting. In order to avoid the cost associated with true structured parking, the housing isn't built over the parking area. Once the necessary site area has been given to parking, there's only so much area left over for buildings. This scheme tops out at an FAR of about 1.1.

COST FACTORS:

1. The primary cost factor in this scheme is the excavation needed to create the recessed parking and the construction of the lid itself. However, since no FAR is used for parking, there is also a financial benefit.
2. The extent of green roof is driven by green factor. It would be a very costly element.
3. Using interior square footage for waste bin storage is a significant loss of saleable area.

EVALUATION:

1. Green Factor of 0.6 is very problematic. By opting not to provide vegetated walls, this project is forced to provide permeable paving and a high depth (expensive) green roof system over the entire roof.
2. Area required for waste bin storage is excessive & inflexible. The required dimensions are incompatible with parking dimensions & side setback areas. Many developers will choose to simply place them in the front yard.
3. Setback averaging penalizes this scheme for putting a lid over the parking. If the code allowed a 5' side setback, this project could meet a 1.1 FAR.

CONCLUSIONS:

1. For projects that make an honest attempt to provide useful amenities, Green Factor is a ungrateful taskmaster, handing out fairly meager rewards for expensive features such as permeable paving and green roofs.
2. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
3. Parking lids that provide open space must be listed among those features that do not contribute to building depth, so projects like this can have a 5' side setback.
4. Congregate waste storage for small ground based housing projects is ridiculous. Projects of this scale must be allowed to use individual bins that can be stored in side setbacks, garages, and adjacent to parking.
5. The front porch allowances are too narrowly defined. Porches should be allowed up to the property line as long as they are screened by landscaping between the porch and the sidewalk.

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TOWNHOMES WITH MEWS

L3	60' x 120'	MID-BLOCK
WHITE HAT	NO DEPARTURES	

W3

PROJECT DATA

COMPONENT		AMOUNT
LOT SIZE		7200
FAR		1.15
NUMBER OF UNITS		6
TOTAL GROSS SQUARE FOOTAGE		8872
NUMBER OF PARKING STALLS		6
TYPE OF PARKING	Individual Garages	
OPEN SPACE TOTAL		2160
OPEN SPACE AT GRADE		2160
OPEN SPACE ABOVE GRADE		0
AMENITY SPACE SQUARE FOOTAGE		2160
GREEN FACTOR (attach calculations)		0.60
LOT COVERAGE (SF)		45.0%
BUILDING HEIGHT/ROOF PEAK		33'-2"
IMPERVIOUS SURFACE		45.0%
OPEN SPACE/LOT SIZE RATIO		30.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 unit per:	1200 SF

ENABLING FACTORS:

1. On a sloping lot the FAR exception for sub grade parking could benefit this scheme
2. Common open space in lieu of private provides far better amenity and community space.
3. Lack of articulation requirements at side facing facades provides design flexibility

GATING MECHANISMS:

1. Backing space for parking erodes the first floor compromising unit relationship to the ground plane and reducing FAR
2. The scheme will not work well on lots less that 60' wide. It would work very well as a mirrored scheme on double lots
3. Achievable FAR is limited without reducing the mews area to narrow corridor. In an L3 zone significant development potential would be left on the table or the scheme would be reduced to a black hat example with poor outside space.

COST FACTORS:

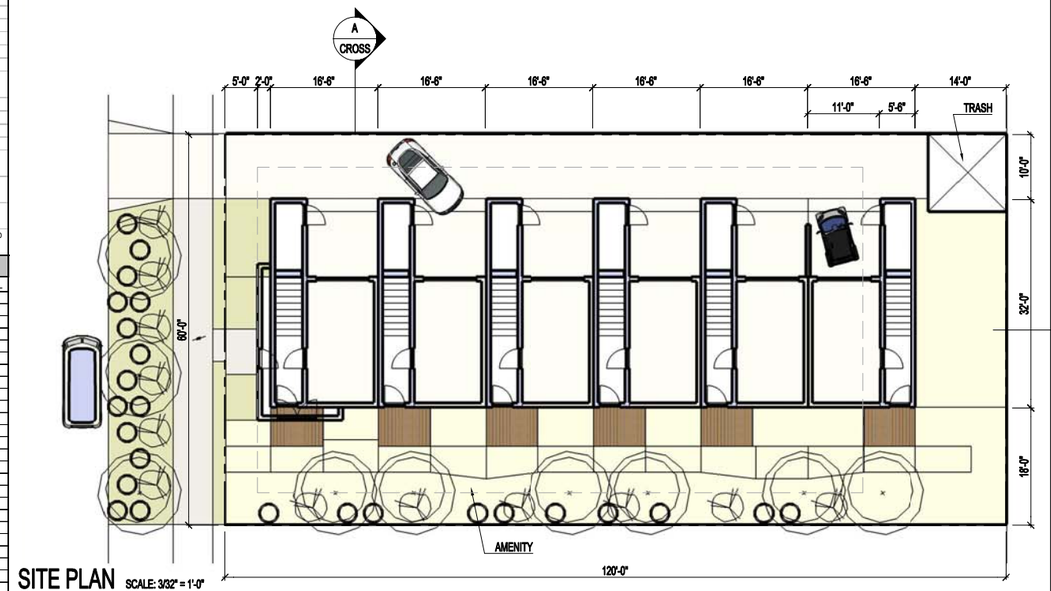
1. Typical townhouse construction keeps costs reasonable.
2. Ability to adapt easily to sloping sites reduces cost of excavation and soil import / export

EVALUATION:

1. Impact of Setback averaging unclear. Large open space oriented to the street should provide benefit against the façade area but there is no clear mechanism for this.
2. At 1.15 FAR this scheme provides a generous pedestrian mews. If the townhouses were built out to 1.4 FAR the mews would be reduced to a narrow swath and would not likely achieve the goal of providing quality community space
3. The scheme may actually benefit from a sloped lot which, if oriented advantageously, could bring the mews up to the living spaces while burying the driveway.
4. Area required for waste bin storage is excessive & inflexible. Preferred location in rear yard is a poor choice for pick up services. Scheme works better with individual storage areas.

GREEN FACTOR

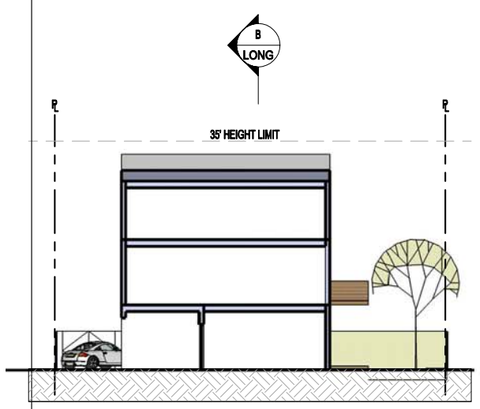
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		3232	0.6	1939.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2909	0.1	290.9
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1000	0.3	300.0
NUMBER OF SMALL TREES	2	50	0.3	30.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	9	150	0.4	540.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		720	0.7	504.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
GREEN FACTOR NUMERATOR				4348.1
PARCEL SIZE				7200
TOTAL GREEN FACTOR				0.60



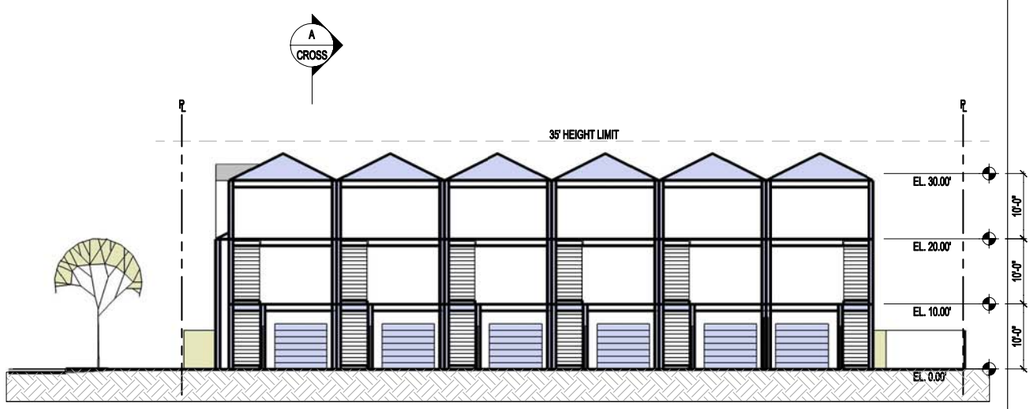
SITE PLAN SCALE: 3/32" = 1'-0"

BIRDS EYE VIEW

STREET VIEW



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	1.15
NUMBER OF UNITS	6
TOTAL GROSS SQUARE FOOTAGE	8872
NUMBER OF PARKING STALLS	6
TYPE OF PARKING	Individual Garages
OPEN SPACE TOTAL	2160
OPEN SPACE AT GRADE	2160
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	2160
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	45.0%
BUILDING HEIGHT/ROOF PEAK	33'-2"
IMPERVIOUS SURFACE	45.0%
OPEN SPACE/LOT SIZE RATIO	30.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/1200 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		3232	0.6	1939.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2909	0.1	290.9
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1000	0.3	300.0
NUMBER OF SMALL TREES	2	50	0.3	30.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	9	150	0.4	540.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		720	0.7	504.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1090	0.5	545.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		940	0.1	94.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
GREEN FACTOR NUMERATOR				4348.1
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**

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W3 - TOWNHOMES WITH MEWS

L3	60'X120'	MID-BLOCK	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:
1. Common open space in lieu of private provides far better amenity and community space.
2. Lack of articulation requirements at side facing facades provides design flexibility

GATING MECHANISMS:
1. Backing space for parking erodes the first floor compromising unit relationship to the ground plane and reducing FAR.
2. The scheme will not work well on lots less that 60' wide. It would work very well as a mirrored scheme on double lots.
3. Achievable FAR is limited without reducing the mews area to narrow corridor.

COST FACTORS:
1. Typical townhouse construction keeps costs reasonable.
2. Ability to adapt easily to sloping sites reduces cost of excavation and soil import / export

EVALUATION:
1. Impact of Setback averaging unclear. Large open space oriented to the street should provide benefit against the façade area but there is no clear mechanism for this.
2. At 1.15 FAR this scheme provides a generous pedestrian mews. If the townhouses were built out to 1.4 FAR the mews would be reduced to a narrow swath and would not likely achieve the goal of providing quality community space
3. The scheme may actually benefit from a sloped lot which, if oriented advantageously, could bring the mews up to the living spaces while burying the driveway.
4. Area required for waste bin storage is excessive & inflexible. Preferred location in rear yard is a poor choice for pick up services. Scheme works better with individual storage areas.

CONCLUSIONS:
1. Small-site ground based housing schemes start to become congested & lose quality open space at FAR higher than 1.1. Maximum FAR for ground based housing should be lowered.

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INFILL BEHIND EXISTING SF HOUSE

LDT	40' x 120'	MID-BLOCK
WHITE HAT	NO DEPARTURES, SEE ALTERNATE	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	4800
FAR	0.96
NUMBER OF UNITS	2 OR ALTERNATE 3
TOTAL GROSS SQUARE FOOTAGE	4882
NUMBER OF PARKING STALLS	1
TYPE OF PARKING	AT GRADE, W//20% TRANSIT REDUCTION
OPEN SPACE TOTAL	2015
OPEN SPACE AT GRADE	2015
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	2015
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (1769 SF)	36.8%
BUILDING HEIGHT/ROOF PEAK	32'-9"
IMPERVIOUS SURFACE	1769 SF
OPEN SPACE/LOT SIZE RATIO	42.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 2400SF or 1 UNIT/1600 SF

ENABLING FACTORS:

1. This proposal is extremely similar to what can be done today under the current code. Why not be more bold?
2. Density limits remain in LDT, setbacks are the same as the current code because of the size of the new structure and the adjacency to single family to the rear of the development site.
3. The alternate proposal suggests providing two smaller homes, thereby increasing the allowable density. The project saves an existing 1500 sq. ft. 1902 home recently remodeled and proposes providing only one off-street parking stall in either the code compliant proposal, since the existing home does not have parking, and the site qualifies for the 20% parking reduction. The two smaller homes, 1272 sq. ft. each, provide two affordable homes in place of the larger expensive one prescribed by the density limits in the current code. Perhaps Density can qualify for a departure through Design Review or projects that save an existing dwelling qualify for a Density Bonus.

GATING MECHANISMS:

1. The scheme is limited by the Density limits still prescribed in LDT, L1 and L2 zones.

COST FACTORS:

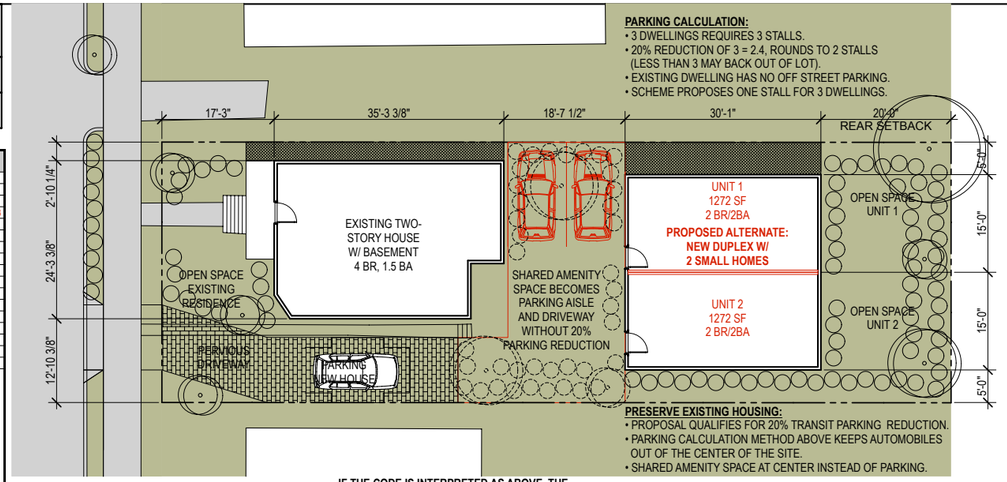
1. The primary cost factor in this scheme is needing to max out the allowable zoning envelope and having limits on density.
2. The alternate proposal spreads cost over two smaller homes, thereby making the FAR in the development more affordable.

EVALUATION:

1. The new legislation can be written to provide incentives to preserve existing housing stock, such as parking reductions and increased density potential. This additional flexibility will create affordable smaller homes.
2. Green Factor of 0.6 is difficult, even on a this site where parking and access occupies little ground space. The narrow planting strip contributes little to the overall Green Factor. Without providing green roofs or green walls, shrubs need to wrap all ground level open space, in excess of what is desirable.
3. Parking only one vehicle on site creates places for people. In the front of the existing house and behind the new structure are private open spaces, while the space between the two structures is a community amenity space. If more parking is required, that space is given over to a parking aisle and parking stalls.

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2015	0.6	1209.0
BIORETENTION FACILITIES		262	1.0	262.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2015	0.1	201.5
SHRUBS OR PERENINIALS 2'+ AT MATURITY		2000	0.3	600.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		500	0.2	100.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1200	0.1	120.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		950	0.1	95.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2997.5
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.60**

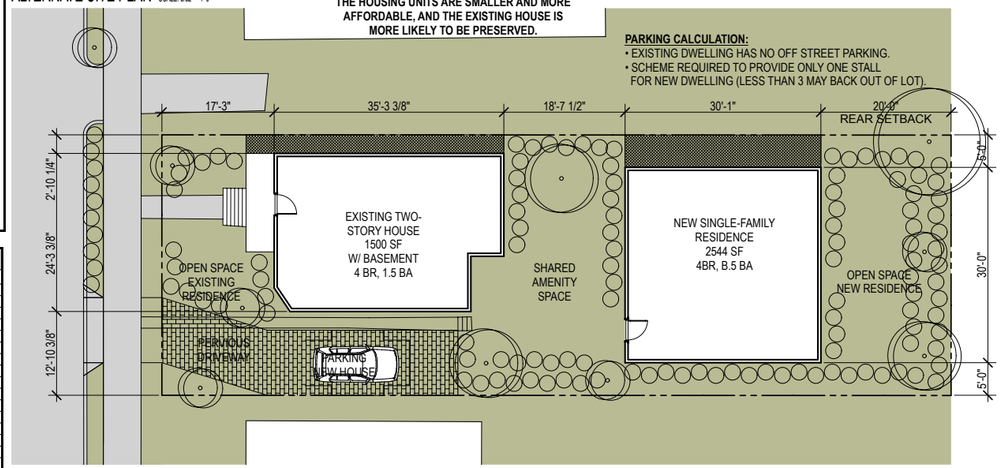


PARKING CALCULATION:
- 3 DWELLINGS REQUIRES 3 STALLS.
- 20% REDUCTION OF 3 = 2.4, ROUNDS TO 2 STALLS (LESS THAN 3 MAY BACK OUT OF LOT).
- EXISTING DWELLING HAS NO OFF STREET PARKING.
- SCHEME PROPOSES ONE STALL FOR 3 DWELLINGS.

PRESERVE EXISTING HOUSING:
- PROPOSAL QUALIFIES FOR 20% TRANSIT PARKING REDUCTION.
- PARKING CALCULATION METHOD ABOVE KEEPS AUTOMOBILES OUT OF THE CENTER OF THE SITE.
- SHARED AMENITY SPACE AT CENTER INSTEAD OF PARKING.

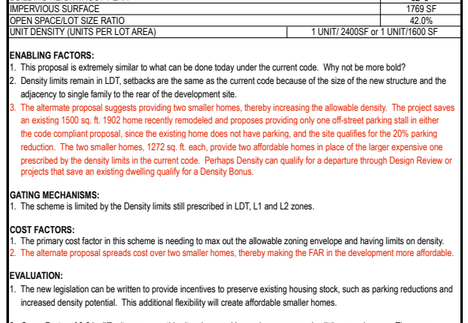
ALTERNATE SITE PLAN SCALE: 3/32" = 1'-0"

IF THE CODE IS INTERPRETED AS ABOVE, THE PROJECT IS MORE ECONOMICALLY FEASIBLE, THE HOUSING UNITS ARE SMALLER AND MORE AFFORDABLE, AND THE EXISTING HOUSE IS MORE LIKELY TO BE PRESERVED.



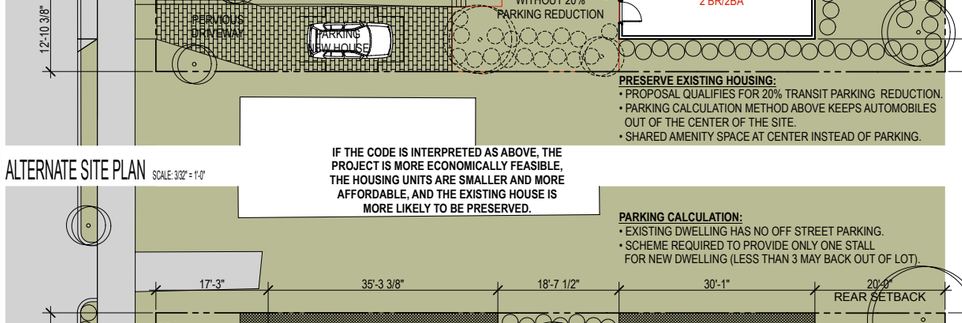
PARKING CALCULATION:
- EXISTING DWELLING HAS NO OFF STREET PARKING.
- SCHEME REQUIRED TO PROVIDE ONLY ONE STALL FOR NEW DWELLING (LESS THAN 3 MAY BACK OUT OF LOT).

SITE PLAN SCALE: 3/32" = 1'-0"



PROPOSED ALTERNATE: NEW DUPLEX W/ 2 SMALL HOMES IN SAME FAR AS SINGLE-FAMILY HOME

CROSS SECTION SCALE: 3/32" = 1'-0"



PROPOSED ALTERNATE: NEW DUPLEX W/ 2 SMALL HOMES IN SAME FAR AS SINGLE-FAMILY HOME

LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

W4

VIEW TITLE

VIEW TITLE

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**4800**
FAR	0.96
NUMBER OF UNITS	2 OR ALTERNATE 3
TOTAL GROSS SQUARE FOOTAGE	4882
NUMBER OF PARKING STALLS	1
TYPE OF PARKING	AT GRADE (20% REDUCTION)
OPEN SPACE TOTAL	2015
OPEN SPACE AT GRADE	2015
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	2015
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	36.8%
BUILDING HEIGHT/ROOF PEAK	32'-9"
IMPERVIOUS SURFACE	1769 SF
OPEN SPACE/LOT SIZE RATIO	42.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1600 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2015	0.6	1209.0
BIORETENTION FACILITIES		262	1.0	262.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2015	0.1	201.5
SHRUBS OR PERENINIALS 2'+ AT MATURITY		2000	0.3	600.0
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		500	0.2	100.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1200	0.1	120.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		950	0.1	95.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2997.5
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.60**

W4 - INFILL BEHIND EXISTING SF HOUSE

LDT	40'X120'	MID-BLOCK	WHITE HAT	DEPARTURE FOR SOLAR

ENABLING FACTORS:

1. This proposal is extremely similar to what can be done today under the current code. Why not be bolder?
2. Density limits remain in LDT, setbacks are the same as the current code because of the size of the new structure and the adjacency to single family to the rear of the development site.
3. The alternate proposal suggests providing two smaller homes, thereby increasing the allowable density. The project saves an existing 1500 sq. ft. home and proposes providing only one off-street parking stall in either the code compliant proposal, since the existing home does not have parking, and the site qualifies for the 20% parking reduction. The two smaller homes, 1272 sq. ft. each, provide two affordable homes in place of the larger expensive one prescribed by the density limits in the current code.

GATING MECHANISMS:

1. Projects that save existing homes are inherently self-limiting. The challenge is allowing them enough development potential to make them viable.

COST FACTORS:

1. The alternate proposal spreads cost over two smaller homes, thereby making the development more affordable.

EVALUATION:

1. The new legislation can be written to provide incentives to preserve existing housing stock, such as parking reductions and increased density potential. This additional flexibility will create affordable smaller homes.
2. Green Factor of 0.6 is difficult, even on this site where parking and access occupies little ground space. The narrow planting strip contributes little to the overall Green Factor. Without providing green roofs or green walls, shrubs need to cover all ground level open space, in excess of what is desirable.
3. Parking only one vehicle on site creates places for people. In the front of the existing house and behind the new structure are private open spaces, while the space between the two structures is a community amenity space. If more parking is required, that space is given over to a parking aisle and parking stalls.

CONCLUSIONS:

1. The code needs to go farther in order to create better alternatives for affordable housing in walkable neighborhoods. This proposal seeks to demonstrate the benefit of providing an additional dwelling on an LDT zoned lot. There is little to additional impact on the surroundings, the FAR is the same whether one large home is provided or two smaller townhomes are provided.
2. A parking reduction dramatically improves the amenity space and provides a site strategy that prioritizes the pedestrian, not the automobile.
3. Density limits should be eliminated, made departable, or projects that save existing dwellings should be given a density bonus.

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GARDEN COURTYARD

L1	40' x 100'	MID-BLOCK
WHITE HAT	NO DEPARTURES	

W5

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	4000
FAR	0.87
NUMBER OF UNITS	3
TOTAL GROSS SQUARE FOOTAGE	3759
NUMBER OF PARKING STALLS	2
TYPE OF PARKING AT GRADE	ON-GRADE
OPEN SPACE TOTAL	1040
OPEN SPACE AT GRADE	1040
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	1040
GREEN FACTOR (attach calculations)	0.61
LOT COVERAGE (SF)	35.6%
BUILDING HEIGHT/ROOF PEAK	27'/35'
IMPERVIOUS SURFACE	34.9%
OPEN SPACE/LOT SIZE RATIO	26.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1333SF

ENABLING FACTORS:
1. The 20% parking reduction is used to provide one fewer parking space, which frees up open space in the center of the site.

GATING MECHANISMS:
1. This scheme works well up to an FAR of about 1.0. As FAR gets higher, the central open space will gradually disappear.
2. This scheme falls apart with more than two parking spaces in the front of the lot.

COST FACTORS:
1. This is a very cost effective scheme.

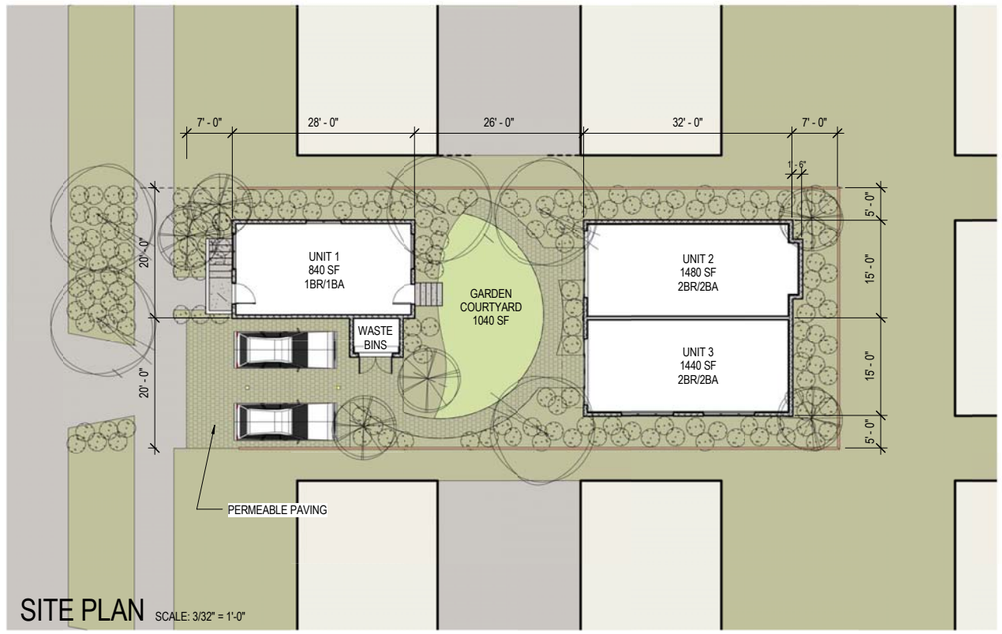
EVALUATION:
1. Bonus incentives should be provided when projects raise main floor level above street grade.

2. Green factor penalizes projects that provide usable green spaces (lawns). In this case, the scheme's lot coverage is so low that green factor is easily satisfied.
3. Despite its low FAR, none of the project floor area is used for parking. The project has usable interior space comparable to a 1.1 FAR 4-pack.
4. Should the extra parking space come with conditions, for example maximum unit size?

GREEN FACTOR

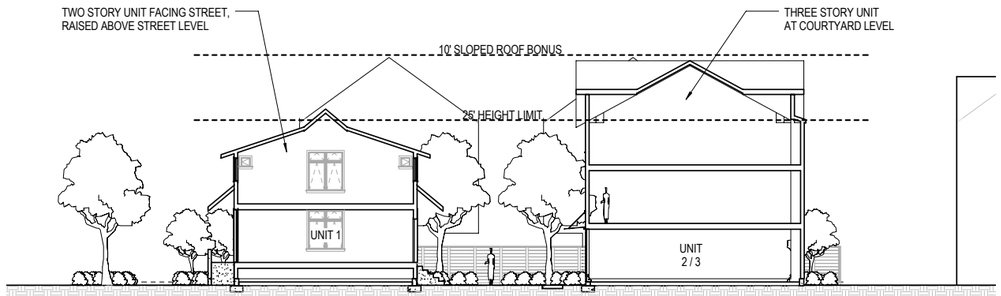
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1956	0.6	1173.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENNIALS 2'+ AT MATURITY		1568	0.3	470.4
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	5	150	0.4	300.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		837	0.2	167.4
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1568	0.1	156.8
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		409	0.1	40.9
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2459.1
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.61**

ELEVATION SCALE: 3/32" = 1'-0"



SITE PLAN SCALE: 3/32" = 1'-0"

CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

STREET VIEW

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**4000**
FAR	0.87
NUMBER OF UNITS	3
TOTAL GROSS SQUARE FOOTAGE	3759
NUMBER OF PARKING STALLS	2
TYPE OF PARKING	ON-GRADE
OPEN SPACE TOTAL	1040
OPEN SPACE AT GRADE	1040
OPEN SPACE ABOVE GRADE	0
AMENITY SPACE SQUARE FOOTAGE	1040
GREEN FACTOR (attach calculations)	0.61
LOT COVERAGE (SF)	35.6%
BUILDING HEIGHT/ROOF PEAK	27' /35'
IMPERVIOUS SURFACE	34.9%
OPEN SPACE/LOT SIZE RATIO	26.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 1333SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1956	0.6	1173.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1568	0.3	470.4
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	5	150	0.4	300.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		837	0.2	167.4
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1568	0.1	156.8
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		409	0.1	40.9
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2459.1
PARCEL SIZE				4000
TOTAL GREEN FACTOR				**0.61**

W5 – GARDEN COURTYARD

LDT	40'X100'	MID-BLOCK	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:
1. The 20% parking reduction is used to provide one fewer parking space.

GATING MECHANISMS:
1. This scheme works well at an FAR of about 1.0. As FAR gets higher, the central open space will gradually disappear.
2. This scheme falls apart with more than two parking spaces in the front of the lot.

COST FACTORS:
1. This is a very cost effective scheme.

EVALUATION:
1. Small front setbacks and 25' height limit create an uncomfortable privacy relationship between street level & main floor level of unit. The scheme would be greatly improved by either creating a 4'-5' deep basement (a cost factor) or allowing a few extra feet of height to lift the main floor above the street level.
2. Green factor penalizes projects that provide usable green spaces (lawns). In this case, the scheme's lot coverage is so low that green factor is easily satisfied anyway.
3. Despite its low FAR, none of the project floor area is used for parking. The project has usable interior space comparable to a 1.1 FAR 4-pack.
4. The parking reduction frees up a lot of space in the center of the site that can be used as open space.

CONCLUSIONS:
1. Congregate waste storage for small ground based housing projects is ridiculous. Projects of this scale must be allowed to use individual bins that can be stored in side setbacks, garages, and adjacent to parking.
2. The front porch allowances are too narrowly defined. Porches should be allowed up to the property line as long as they are screened by landscaping between the porch and the sidewalk.
3. A 30' height limit in the low L-zones will allow projects to lift the main floor above the street without losing a story off the project.

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MIXED UNIT CONDOMINIUM

L1	50' x 100'	MID-BLOCK
WHITE HAT	CODE CHANGE	

W6

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	5000
FAR	1.08
NUMBER OF UNITS	6
TOTAL GROSS SQUARE FOOTAGE	5832
NUMBER OF PARKING STALLS	0
TYPE OF PARKING AT GRADE	NONE PROVIDED
OPEN SPACE TOTAL	2922
OPEN SPACE AT GRADE	1950
OPEN SPACE ABOVE GRADE	972
AMENITY SPACE SQUARE FOOTAGE	2922
GREEN FACTOR (attach calculations)	0.61
LOT COVERAGE (SF)	45.0%
BUILDING HEIGHT/ROOF PEAK	26' / 34'
IMPERVIOUS SURFACE	56.5%
OPEN SPACE/LOT SIZE RATIO	58.4%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 833SF

ENABLING FACTORS:
1. CODE CHANGE: No Density Limits in small L zones.
2. No parking required in station areas.
3. Condominium ownership eliminates problems with unit lot subdivision and flats.

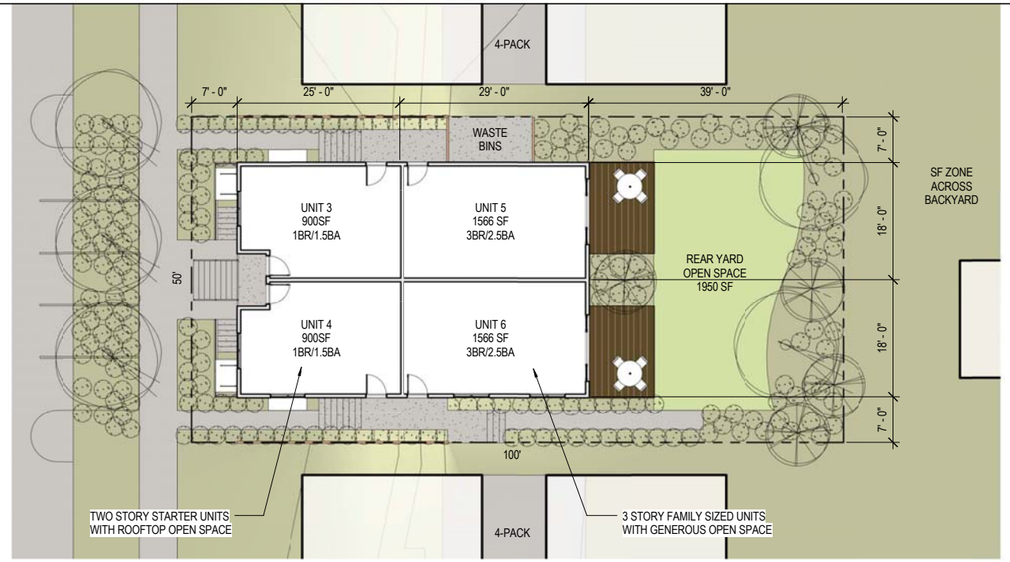
GATING MECHANISMS:
1. Setting main floor level above the street with a 25' height limit restricts the project to 2 stories above grade.
2. FAR limits prevent the project from expanding into the open space.

COST FACTORS:
1. Excavation & construction of the basement level.
2. Roof decks are more expensive than a conventional roof system.

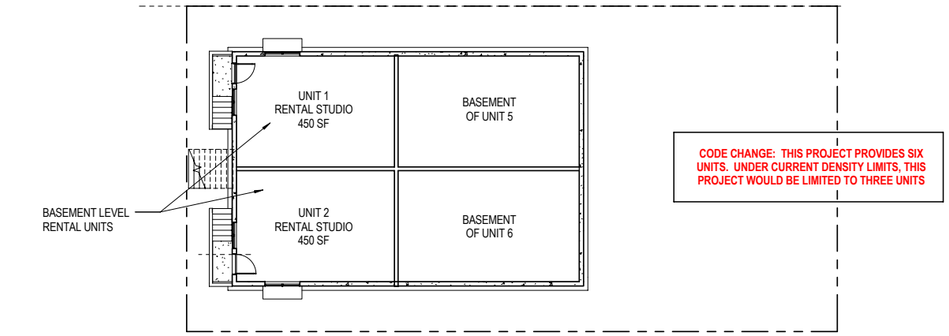
EVALUATION:
1. Lifting the main floor level above street level creates a better relationship between the public & private realm, but causes the project to lose one story of height above grade. If this project were built in a high FAR zone (L3), it would need a third story and a height limit of about 34'. Otherwise, the project would expand into the open space.
2. Green factor penalizes projects that provide usable green space (lawn). In this case, the scheme's lot coverage is so low that green factor is easily satisfied.
3. Where parking requirements are still in effect, removing density limits would be a fairly modest change, as parking minimums are a density limit as well. In station areas and urban centers where parking is not required, removing density limits could potentially lead to dramatic changes in unit size and affordability.
4. Consider incentives for projects that provide basements, including: FAR waiver for basement areas, height bonus for constructing a basement.

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2741	0.6	1644.6
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1936	0.3	580.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	5	150	0.4	300.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		2741	0.1	274.1
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		853	0.1	85.3
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				3034.8
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.61**

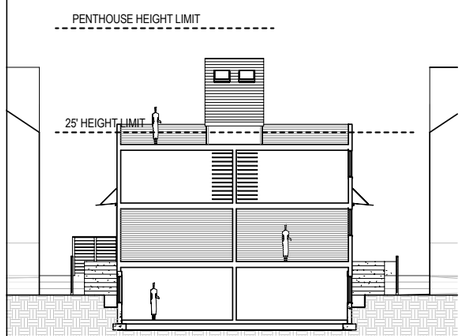


SITE PLAN SCALE: 3/32" = 1'-0"

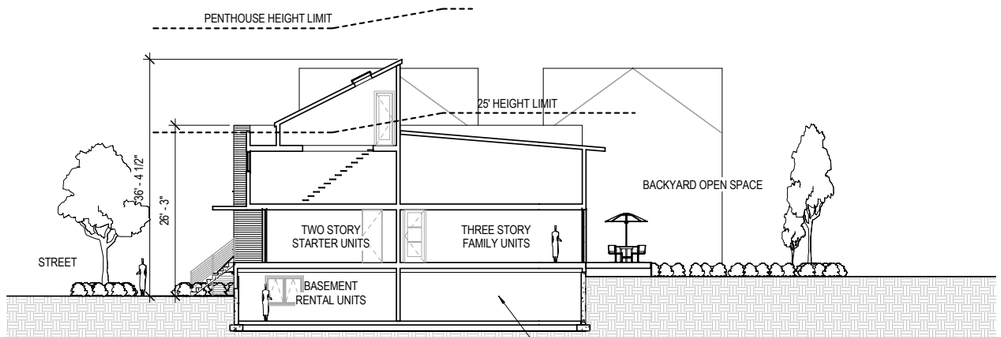


CODE CHANGE: THIS PROJECT PROVIDES SIX UNITS. UNDER CURRENT DENSITY LIMITS, THIS PROJECT WOULD BE LIMITED TO THREE UNITS

BASEMENT LEVEL PLAN SCALE: 3/32" = 1'-0"

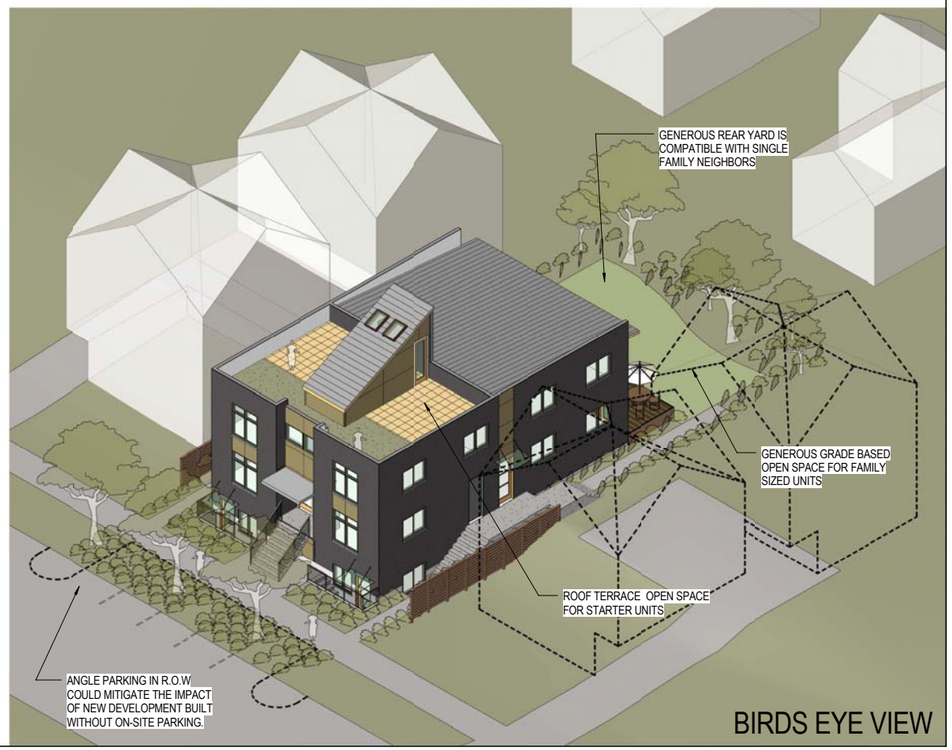


CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

STREET VIEW



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	5000
FAR	1.08
NUMBER OF UNITS	6
TOTAL GROSS SQUARE FOOTAGE	5832
NUMBER OF PARKING STALLS	0
TYPE OF PARKING	NONE PROVIDED
OPEN SPACE TOTAL	2922
OPEN SPACE AT GRADE	1950
OPEN SPACE ABOVE GRADE	972
AMENITY SPACE SQUARE FOOTAGE	2922
GREEN FACTOR (attach calculations)	0.61
LOT COVERAGE (SF)	45.0%
BUILDING HEIGHT/ROOF PEAK	25'-0"
IMPERVIOUS SURFACE	56.5%
OPEN SPACE/LOT SIZE RATIO	58.4%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 833SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		2741	0.6	1644.6
BIORETENTION FACILITIES			1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY			0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1936	0.3	580.8
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	5	150	0.4	300.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		2741	0.1	274.1
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		853	0.1	85.3
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				3034.8
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.61**

W6 – MIXED UNIT CONDOMINIUM

L1	50'X100'	MID-BLOCK	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:
1. Code Change - Eliminate Density limits.
2. No parking required in station areas.
3. Condominium ownership eliminates problems with unit lot subdivision and flats.

GATING MECHANISMS:
1. Setting main floor level above the street with a 25' height limit restricts the project to 2 stories above grade.
2. FAR limits prevent the project from expanding into the open space.

COST FACTORS:
1. Excavation for the basement level.
2. Roof decks are more expensive than a conventional roof system.

EVALUATION:
1. Lifting the main floor level above street level creates a better relationship between the public & private realm, but causes the project to lose one story of height above grade. If this project were built in a high FAR zone (L3), it would need a height limit of about 34'.
2. Green factor penalizes projects that provide usable green space (lawn). In this case, the scheme's lot coverage is so low that green factor is easily satisfied.

CONCLUSIONS:
1. Maintaining density limits in station areas where parking requirements have been waived would be a bizarre policy, creating large family sized units with no parking provided. Density limits must be eliminated in these areas.
2. Congregate waste storage for small ground based housing projects is ridiculous. Projects of this scale must be allowed to use individual bins that can be stored in side setbacks, garages, and adjacent to parking.
3. The front porch allowances are too narrowly defined. Porches should be allowed up to the property line as long as they are screened by landscaping between the porch and the sidewalk.
4. Basements units should be encouraged as a way to provide low-cost rental units. Raising the height limit to 30' and waiving FAR for basements (see building code definition) will encourage their construction & help lift the main floor level above the street.
5. Angled parking in the right-of-way should be encouraged in the neighborhood plans of station areas, where transformational development is likely.

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TOWNHOUSE INFILL

L3	40' x 91'	MID-BLOCK THROUGH LOT
WHITE HAT	SETBACKS, CURB CUT, CLERESTORIES, FAR	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	3640
FAR (FAR IS ABOUT 1.4 IF BASEMENT LEVEL IS NOT INCLUDED)	1.62
NUMBER OF UNITS	4
TOTAL GROSS SQUARE FOOTAGE	6350
NUMBER OF PARKING STALLS	4
TYPE OF PARKING	AT GRADE MINOR STREET
OPEN SPACE TOTAL	690
OPEN SPACE AT GRADE	180
OPEN SPACE ABOVE GRADE	510
AMENITY SPACE SQUARE FOOTAGE	957
GREEN FACTOR (attach calculations)	**0.60**
LOT COVERAGE (2445 SF)	52.4%
BUILDING HEIGHT/ROOF PEAK	34'-0"
IMPERVIOUS SURFACE	52%
OPEN SPACE/LOT SIZE RATIO	19.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 910 SF

ENABLING FACTORS:

1. Shared Amenity space replaces private open space in this scheme, creating a common courtyard at the project's center.
2. Reduced setbacksof 7 feet , averaged for the entire site (front + sides + rear / total building face length = average setback instead of averaging each side independently) allows for greater flexibility. This averaging method creates a 5-foot front setback, a 17-foot "rear" setback in the the second "front setback" along the minor street. of the through lot. A courtyard is provided on the south side of the property. Parking is provided at grade at the elevation of the lower street below a green roof.
3. Departures are required for an interpretation of the side setback provision, for curb cut width, for clerestories at the roof and for FAR (or an incentive).

GATING MECHANISMS:

1. Because basement area is considered part of FAR, the project achieves an FAR of 1.62.
2. Because parking is provided through a wide curb cut of the minor street (similar to an alley condition) a high FAR is achievable on this small lot.

COST FACTORS:

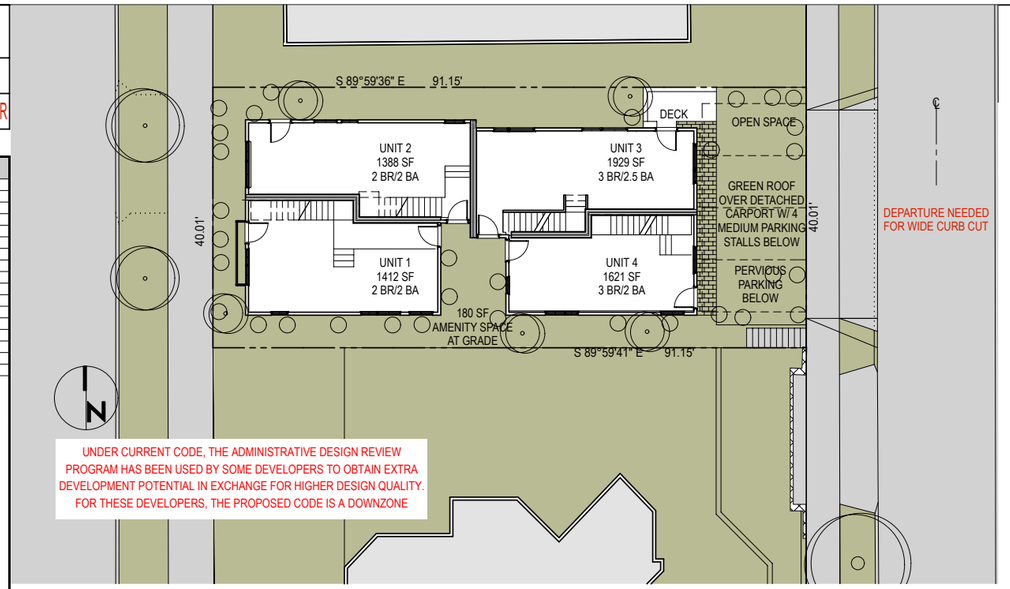
1. The primary cost factors in this scheme are the roof top photovoltaic solar panels, not addressed sufficiently in the code update, the third floor decks and green roof over parking.

EVALUATION:

1. On a small through lot, 40 feet x 91 feet, flexibility in the code is especially relevant. The flexibility created by going to FAR, reduced setbacks and amenity shared open space, while encouraging sustainable construction choices enables this very site specific scheme.
2. The areas for trash can be handled at the front of each car parking stall.
3. The proposed roof provides clerestories along the north building façade for the length of the building to bring northern to bring northern light into the units and provide a roof slope for the solar photovoltaic panels.
4. All roof types should qualify for the additional 5 feet of height in Lowrise 3 including clerestories and sheds.

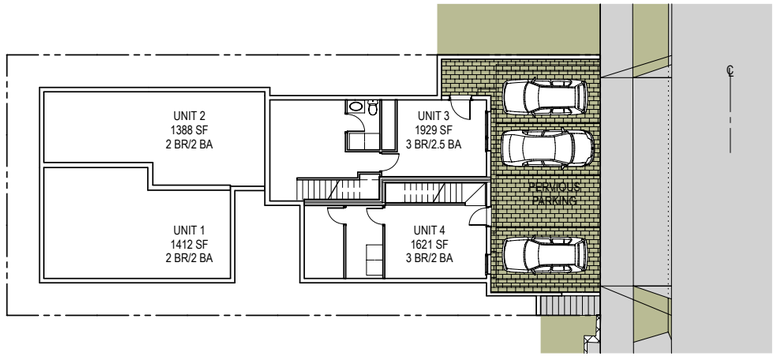
GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1396	0.6	837.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1396	0.1	139.6
SHRUBS OR PERENINIALS 2'+ AT MATURITY		512	0.3	153.6
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	1	150	0.4	60.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		510	0.7	357.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		544	0.5	272.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		850	0.1	85.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		600	0.1	60.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2194.8
PARCEL SIZE				3640
TOTAL GREEN FACTOR				**0.60**



UNDER CURRENT CODE, THE ADMINISTRATIVE DESIGN REVIEW PROGRAM HAS BEEN USED BY SOME DEVELOPERS TO OBTAIN EXTRA DEVELOPMENT POTENTIAL IN EXCHANGE FOR HIGHER DESIGN QUALITY. FOR THESE DEVELOPERS, THE PROPOSED CODE IS A DOWNZONE

SITE PLAN SCALE: 3/32" = 1'-0"



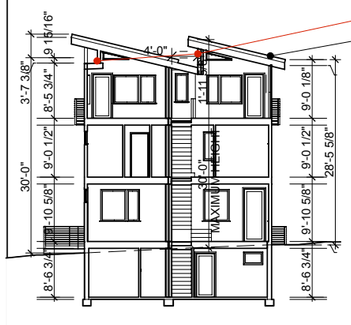
BASEMENT / PARKING PLAN SCALE: 3/32" = 1'-0"

STREET VIEW

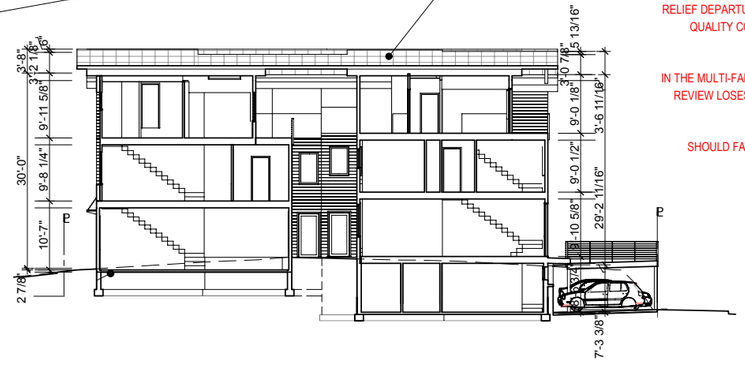
STREET VIEW

CLERESTORY PROVIDED ALONG NORTH PROPERTY LINE AND BETWEEN ROOF SLOPES.

SOLAR PHOTOVOLTAIC PANELS ON STRUCTURE ROOF.



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

THIS IS A REAL PROJECT RECENTLY APPROVED THROUGH ADMINISTRATIVE DESIGN REVIEW. LOT COVERAGE AND SETBACK RELIEF DEPARTURES WERE GRANTED. GREEN FEATURES AND HIGH QUALITY CONSTRUCTION WERE EXCHANGED FOR EXTRA DEVELOPEMENT POTENTIAL.

IN THE MULTI-FAMILY UPDATE, FAR IS NON-DEPARTABLE, SO DESIGN REVIEW LOSES SOME OF ITS CAPACITY FOR GIVE AND TAKE ON DIFFICULT SITES .

SHOULD FAR BE NEGOTIABLE THROUGH DESIGN REVIEW?

BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**3640**
FAR	1.62
NUMBER OF UNITS	4
TOTAL GROSS SQUARE FOOTAGE	6350
NUMBER OF PARKING STALLS	4
TYPE OF PARKING	AT GRADE OFF MINOR STREET
OPEN SPACE TOTAL	690
OPEN SPACE AT GRADE	180
OPEN SPACE ABOVE GRADE	510
AMENITY SPACE SQUARE FOOTAGE	957
GREEN FACTOR (attach calculations)	**0.60**
LOT COVERAGE (SF)	52.4%
BUILDING HEIGHT/ROOF PEAK	34'-0"
IMPERVIOUS SURFACE	52%
OPEN SPACE/LOT SIZE RATIO	19.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 910 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1396	0.6	837.6
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1396	0.1	139.6
SHRUBS OR PERENINIALS 2'+ AT MATURITY		512	0.3	153.6
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	5	100	0.3	150.0
NUMBER OF MEDIUM/LARGE TREES	1	150	0.4	60.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		510	0.7	357.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL			0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		544	0.5	272.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		850	0.1	85.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		600	0.1	60.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				2194.8
PARCEL SIZE				3640
TOTAL GREEN FACTOR				**0.60**

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W7 - TOWNHOUSE INFILL

L3	40'X91'	MID-BLOCK	WHITE HAT	SETBACKS, CURB CUT, CLERESTORIES, FAR

ENABLING FACTORS:
1. Shared Amenity space replaces private open space in this scheme, creating a common courtyard at the project's center.
2. Reduced setbacks of 7 feet, averaged for the entire site (front + sides + rear / total building face length = average setback instead of averaging each side independently) allows for greater flexibility. This averaging method creates a 5-foot front setback, a 17-foot "rear" setback in the second "front setback" along the minor street of the through lot. A courtyard is provided on the south side of the property. Parking is provided at grade at the elevation of the lower street below a green roof.
3. Departures are required for an interpretation of the side setback provision, for curb cut width, for clerestories at the roof and for FAR (or an incentive).

GATING MECHANISMS:
1. Because basement area is considered part of FAR, the project achieves an FAR of 1.62.
2. Because parking is provided through a wide curb cut of the minor street (similar to an alley condition) a high FAR is achievable on this small lot.

COST FACTORS:
1. The primary cost factors in this scheme are the roof top photovoltaic solar panels, not addressed sufficiently in the code update, the third floor decks and green roof over parking.

EVALUATION:
1. On a small through lot, 40 feet x 91 feet, flexibility in the code is especially relevant. The flexibility created by going to FAR, reduced setbacks and amenity shared open space, while encouraging sustainable construction choices enables this very site-specific scheme.
2. The areas for trash can be handled at the front of each car parking stall.
3. The proposed roof provides clerestories along the north building façade for the length of the building to bring northern to bring northern light into the units and provide a roof slope for the solar photovoltaic panels.
4. All roof types should qualify for the additional 5 feet of height in Lowrise 3 including clerestories and sheds.

CONCLUSIONS:
1. This is an actual project recently approved through design review. In the past, design review has often been used to exchange development potential (higher lot coverage) for quality design & construction. In the multi-family update, FAR potential is fixed, so there is no way for this type of horse-trading to occur. Consider making an increment of FAR subject to increase through design review.
2. Allowing setbacks to be averaged for the entire site will allow a smaller front setback balanced by a larger rear setback where it may be appropriate. These setbacks will be subject to Administrative Design Review and any potential impact can be studied. It creates an opportunity in this case for parking to be located in the rear setback and covered with a green roof.

CORArchitecture

COURTYARD FLATS

L3	60' x 120'	MID-BLOCK
WHITE HAT	CODE CHANGE	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	7200
FAR	1.25
NUMBER OF UNITS	14
TOTAL GROSS SQUARE FOOTAGE	9686
NUMBER OF PARKING STALLS	14
TYPE OF PARKING	PARTIALLY UNDERGROUND
OPEN SPACE TOTAL	2785
OPEN SPACE AT GRADE (COURTYARD)	725
OPEN SPACE ABOVE GRADE (ROOF TERRACE)	2060
AMENITY SPACE SQUARE FOOTAGE	2785
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE	37.4%
BUILDING HEIGHT/ROOF PEAK	34'/39'
IMPERVIOUS SURFACE	30%
OPEN SPACE/LOT SIZE RATIO	38.7%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 514SF

ENABLING FACTORS:

1. Under proposed code, this scheme would require a departure for HEIGHT. Floor to floor heights of 10' are used; this
2. The height exception for sub-grade parking is very helpful. It would be difficult to recess the parking level without this exception

GATING MECHANISMS:

COST FACTORS:

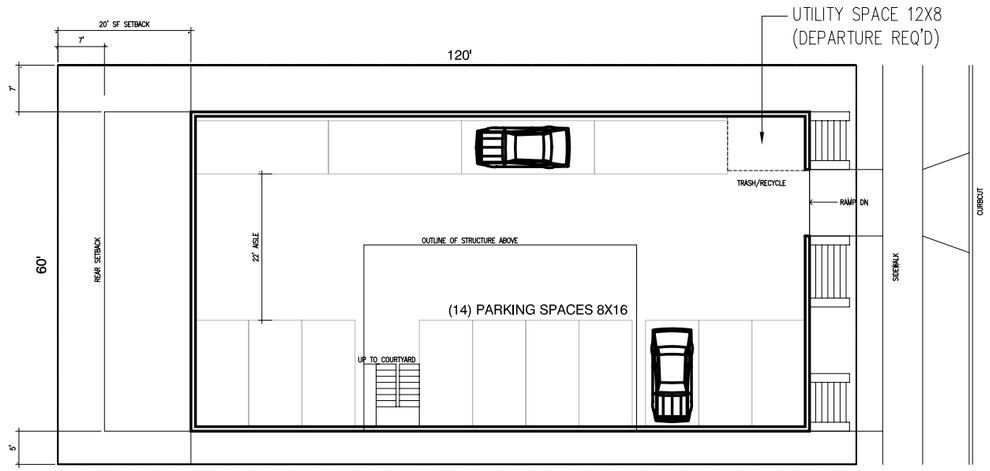
1. The primary cost factor in this scheme is the lid itself. For safety reasons the underside needs to be fire rated & so the top-side needs to be a terraced roof deck or green roof. As the lid becomes better open space & incorporates more design features it could become costly. In contrast to a typical auto-court scheme, there is no interior space used for parking, so all FAR is provided as usable area

EVALUATION:

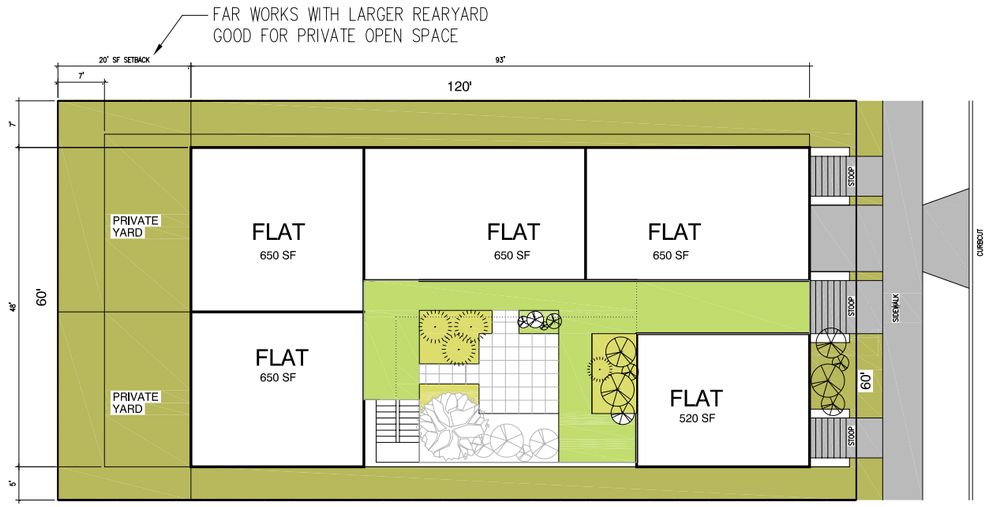
1. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
2. Area required for waste bin storage is excessive and should be reduced as shown on plan.
4. The green roof is difficult to install on the type of roof made necessary by the height limits. A minimum roof slope should not be required; all roof structure should be allowed in the 5' height bonus.

GREEN FACTOR

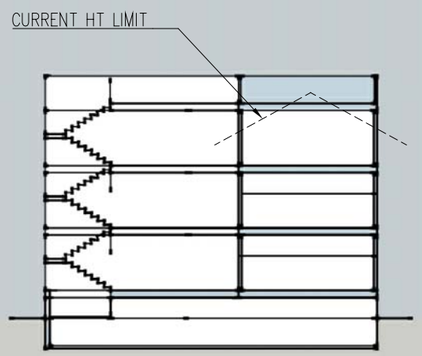
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W SOIL DEPTH LESS THAN 24"		500	0.1	50.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (ONSITE)		2400	0.6	1440.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (IN R.O.W.)		440	0.6	264.0
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2044	0.1	204.4
SHRUBS OR PERENINIALS 2'+ AT MATURITY		800	0.3	240.0
NUMBER OF SMALL TREES	3	50	0.3	45.0
NUMBER OF SMALL/MEDIUM TREES	3	100	0.3	90.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	2	200	0.4	160.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM		2060	0.4	824.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS		950	0.7	665.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1	0.5	0.5
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
GREEN FACTOR NUMERATOR				4317.9
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**



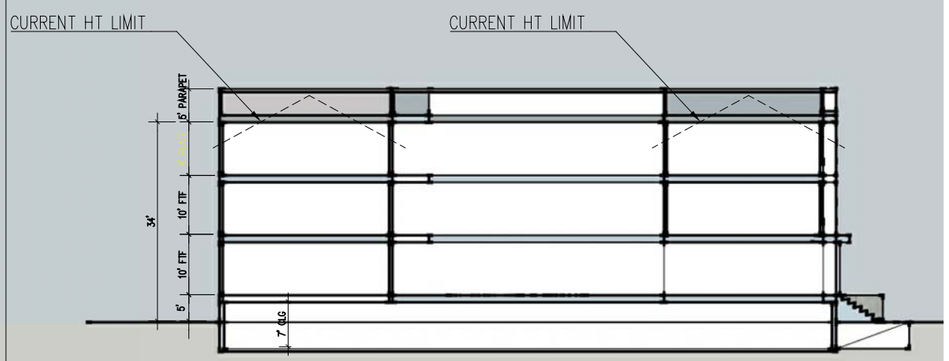
GARAGE LEVEL PLAN SCALE: 3/32" = 1'-0"



SITE PLAN SCALE: 3/32" = 1'-0"



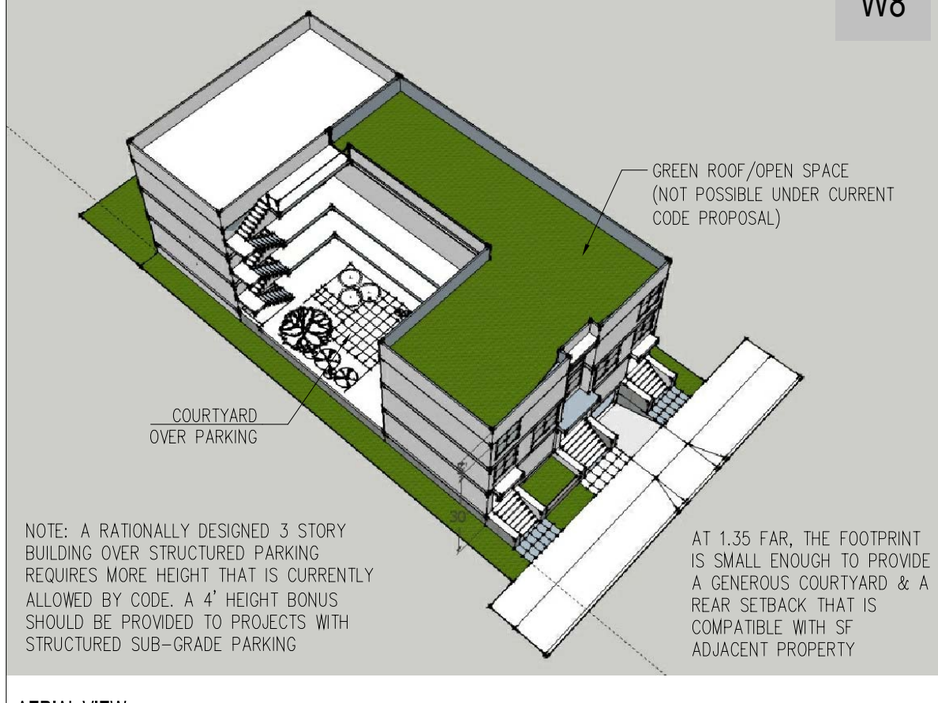
CROSS SECTION SCALE: 3/32" = 1'-0"



THE CURRENT CODE IS BASED ON AN ASSUMPTION OF 9' FLOOR TO FLOOR. AS A BASIS FOR THE CODE HEIGHT LIMIT, A 10' FLOOR TO FLOOR HEIGHT IS MORE APPROPRIATE

LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

W8

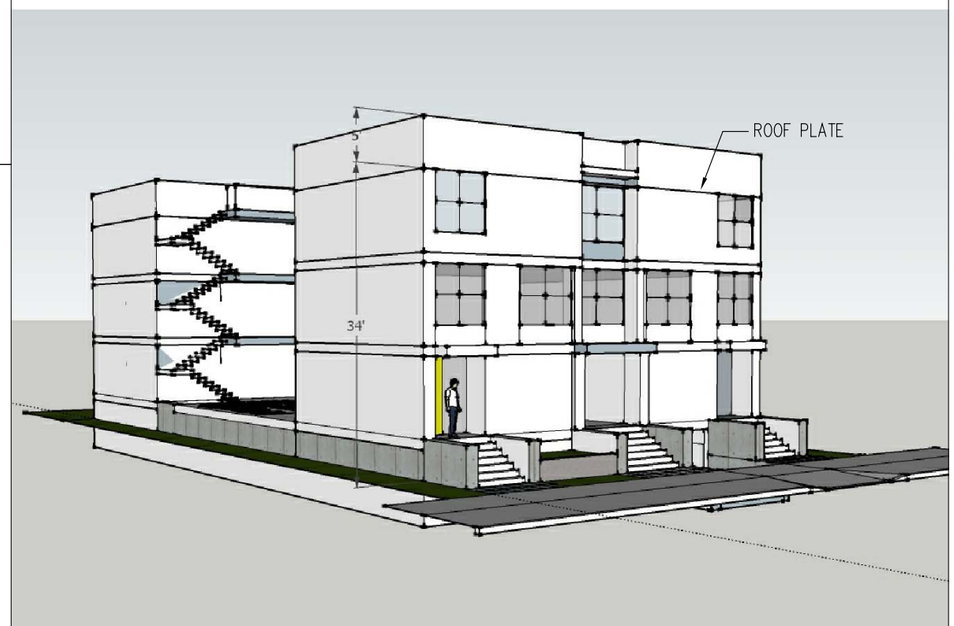


NOTE: A RATIONALLY DESIGNED 3 STORY BUILDING OVER STRUCTURED PARKING REQUIRES MORE HEIGHT THAT IS CURRENTLY ALLOWED BY CODE. A 4' HEIGHT BONUS SHOULD BE PROVIDED TO PROJECTS WITH STRUCTURED SUB-GRADE PARKING

AT 1.35 FAR, THE FOOTPRINT IS SMALL ENOUGH TO PROVIDE A GENEROUS COURTYARD & A REAR SETBACK THAT IS COMPATIBLE WITH SF ADJACENT PROPERTY

AERIAL VIEW

CODE CHANGE: L3 HEIGHT LIMIT CHANGED TO 34' TO ALLOW REASONABLE ACCOMMODATION OF STRUCTURED PARKING, TYPICAL FLOOR TO FLOOR HEIGHTS, AND ROOFTOP AMENITIES SUCH AS GREEN ROOFS AND TERRACES



STREET VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	1.35
NUMBER OF UNITS	14
TOTAL GROSS SQUARE FOOTAGE	9686
NUMBER OF PARKING STALLS	14
TYPE OF PARKING	PARTIALLY UNDERGROUND
OPEN SPACE TOTAL	2785
OPEN SPACE AT GRADE (COURTYARD)	725
OPEN SPACE ABOVE GRADE (ROOF TERRACE)	2060
AMENITY SPACE SQUARE FOOTAGE	2785
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE	37.4%
BUILDING HEIGHT/ROOF PEAK	34'/39'
IMPERVIOUS SURFACE	30%
OPEN SPACE/LOT SIZE RATIO	38.7%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 514SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		500	0.1	50.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (ONSITE)		2400	0.6	1440.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (IN R.O.W.)		440	0.6	264.0
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		2044	0.1	204.4
SHRUBS OR PERENINIALS 2'+ AT MATURITY		800	0.3	240.0
NUMBER OF SMALL TREES	3	50	0.3	45.0
NUMBER OF SMALL/MEDIUM TREES	3	100	0.3	90.0
NUMBER OF MEDIUM/LARGE TREES	3	150	0.4	180.0
NUMBER OF LARGE TREES	2	200	0.4	160.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM		2060	0.4	824.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM			0.7	0.0
VEGETATED WALLS		950	0.7	665.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		1	0.5	0.5
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		500	0.1	50.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
TOTAL GREEN FACTOR				**0.60**

W8 – COURTYARD FLATS (60x120)

L3	60'X120'	MID-BLOCK	WHITE HAT	WITH DEPARTURES

ENABLING FACTORS:

1. Under proposed code, this scheme would require a departure for HEIGHT. Floor to floor heights of 10' are used; this allows for 16" floor joists with 8.5' ceilings. The flat roof structure requires an additional 2' to accommodate green roof + usable open space construction. It would make sense to exempt all roof structures from the base height, i.e. measure base height to top of wall plate.
2. The height exception for sub-grade parking is very helpful. It would be difficult to recess the parking level without this exception

GATING MECHANISMS:

1. FAR and the ability to provide parking for the units are the primary limits on development.

COST FACTORS:

1. The primary cost factor in this scheme is the lid itself. For safety reasons the underside needs to be fire rated & so the top-side needs to be a terraced roof deck or green roof. As the lid becomes better open space & incorporates more design features it could become costly. In contrast to a typical auto-court scheme, there is no interior space used for parking, so all FAR is provided as usable area

EVALUATION:

1. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
2. Area required for waste bin storage is excessive and should be reduced as shown on plan.
3. The green roof is difficult to install on the type of roof made necessary by the height limits. A minimum roof slope should not be required; all roof structure should be allowed in the 5' height bonus.
4. At 1.35 FAR, the footprint is small enough to provide a generous courtyard & a rear setback that is compatible with SF adjacent property

CONCLUSIONS:

1. A rationally designed 3 story building over structured parking requires more height that is currently allowed by code. A 4' height bonus should be provided to projects with structured sub-grade parking
2. Other than height, the proposed code provides for a workable solution with high density flats. It might even pencil out to provide market rate flats that are smaller and more affordable, thus addressing a demographic that is currently neglected.
3. Setback averaging should not include the parking lid. Side setbacks should be an aggregate of the two sides.

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COURTYARD FLATS

L3	50' x 100'	MID-BLOCK
WHITE HAT	WITH DEPARTURES	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	5000
FAR	1.40
NUMBER OF UNITS	9
TOTAL GROSS SQUARE FOOTAGE	7000
NUMBER OF PARKING STALLS	9
TYPE OF PARKING	PARTIALLY UNDERGROUND
OPEN SPACE TOTAL	1010
OPEN SPACE AT GRADE	640
OPEN SPACE ABOVE GRADE	370
AMENITY SPACE SQUARE FOOTAGE	1010
GREEN FACTOR (attach calculations)	0.40
LOT COVERAGE (SF)	68%
BUILDING HEIGHT/ROOF PEAK	30'/35"
IMPERVIOUS SURFACE	3380
OPEN SPACE/LOT SIZE RATIO	20.2%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 555 SF

ENABLING FACTORS:

1. Under proposed code, this scheme would require a departure for SIDE setback averaging in order to fit the parking with a 22' aisle in partially buried structure
2. The height exception for sub-grade parking is very helpful. It would be difficult to recess the parking level without this exception

GATING MECHANISMS:

COST FACTORS:

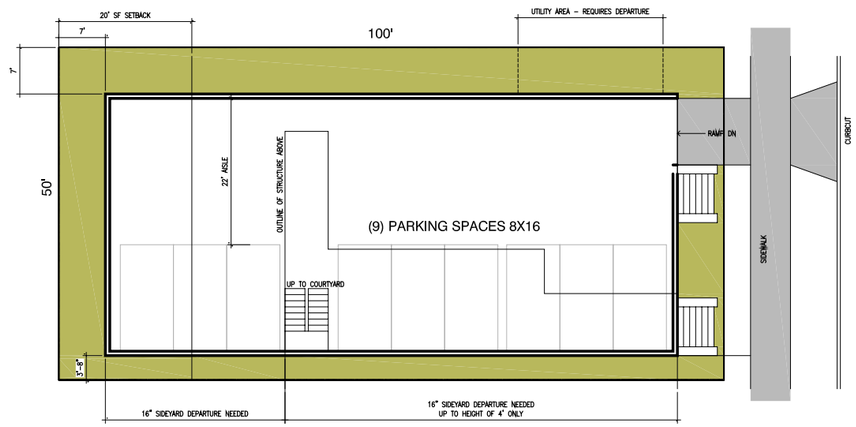
1. The primary cost factor in this scheme is the lid itself. For safety reasons the underside needs to be fire rated & so the top-side needs to be a terraced roof deck or green roof. As the lid becomes better open space & incorporates more design features it could become costly. In contrast to a typical auto-court scheme, there is no interior space used for parking, so all FAR is provided as usable area

EVALUATION:

1. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
2. Green Factor of 0.6 is very problematic. A GF score of about 0.4 can be achieved by extensive landscaping & use of permeable paving. Height limits make it very difficult to provide the type of roof (low sloped shed) that would allow this to be installed in a manner that is easily constructed.
3. Area required for waste bin storage is excessive & inflexible. The required dimensions are incompatible with parking dimensions. The side yard becomes the most expedient location.

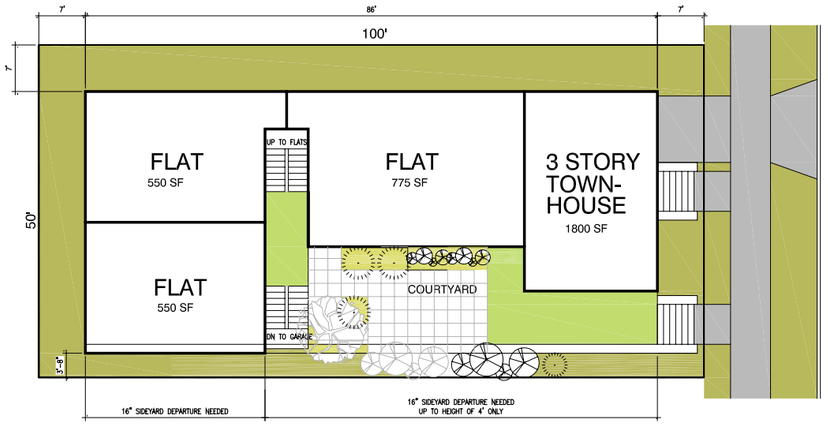
GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W SOIL DEPTH LESS THAN 24"		640	0.1	64.0
LANDSCAPED AREA W 24" OF SOIL OR GREATER (ONSITE)		1385	0.4	554.0
LANDSCAPED AREA W 24" OF SOIL OR GREATER (IN R.O.W.)		409	0.6	245.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1000	0.1	100.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		800	0.3	240.0
NUMBER OF SMALL TREES	4	50	0.3	60.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	2	150	0.4	120.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM		0	0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		688	0.7	481.6
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		50	0.5	25.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		250	0.1	25.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
GREEN FACTOR NUMERATOR				2020.0
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.40**

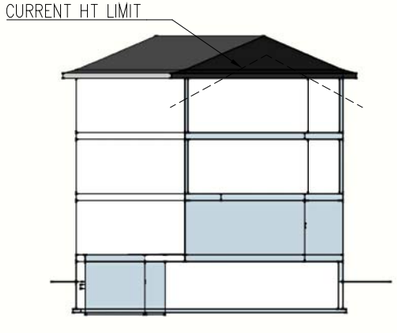


NOTES:
16" SIDEYAR
TO ACHIEVE

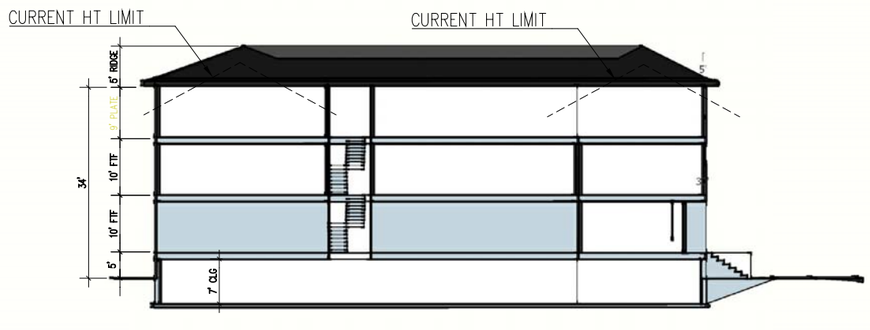
GARAGE LEVEL PLAN SCALE: 3/32" = 1'-0"



SITE PLAN SCALE: 3/32" = 1'-0"



CROSS SECTION SCALE: 3/32" = 1'-0"



THE CURRENT CODE IS BASED ON AN ASSUMPTION OF 9' FLOOR TO FLOOR. AS A BASIS FOR THE CODE HEIGHT LIMIT, A 10' FLOOR TO FLOOR HEIGHT IS MORE APPROPRIATE

LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

W9

NOTE: A RATIONALLY DESIGNED 3 STORY BUILDING OVER STRUCTURED PARKING REQUIRES MORE HEIGHT THAT IS CURRENTLY ALLOWED BY CODE. A 4' HEIGHT BONUS SHOULD BE PROVIDED TO PROJECTS WITH STRUCTURED SUB-GRADE PARKING

AERIAL VIEW

STREET VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**5000**
FAR	1.40
NUMBER OF UNITS	9
TOTAL GROSS SQUARE FOOTAGE	7000
NUMBER OF PARKING STALLS	9
TYPE OF PARKING	PARTIALLY UNDERGROUND
OPEN SPACE TOTAL	1010
OPEN SPACE AT GRADE	640
OPEN SPACE ABOVE GRADE	370
AMENITY SPACE SQUARE FOOTAGE	1010
GREEN FACTOR (attach calculations)	0.40
LOT COVERAGE (SF)	68%
BUILDING HEIGHT/ROOF PEAK	30'/35"
IMPERVIOUS SURFACE	3380
OPEN SPACE/LOT SIZE RATIO	20.2%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 555 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		640	0.1	64.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (ONSITE)		1385	0.4	554.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER (IN R.O.W.)		409	0.6	245.4
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1000	0.1	100.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		800	0.3	240.0
NUMBER OF SMALL TREES	4	50	0.3	60.0
NUMBER OF SMALL/MEDIUM TREES	0	100	0.3	0.0
NUMBER OF MEDIUM/LARGE TREES	2	150	0.4	120.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM		0	0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		0	0.7	0.0
VEGETATED WALLS		688	0.7	481.6
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		50	0.5	25.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		250	0.1	25.0
LANDSCAPING IN FOOD CULTIVATION		50	0.1	5.0
GREEN FACTOR NUMERATOR				2020.0

W9 – COURTYARD FLATS (50X100)

L3	50'X100'	MID-BLOCK	WHITE HAT	WITH DEPARTURES

ENABLING FACTORS:

1. Under proposed code, this scheme would require a departure for side setback averaging in order to fit the parking with a 22' aisle in partially buried structure.
2. The height exception for sub-grade parking is very helpful. It would be difficult to recess the parking level without this exception.

GATING MECHANISMS:

1. FAR and the ability to provide parking for the units are the primary limits on development.

COST FACTORS:

1. The primary cost factor in this scheme is the lid itself. As the lid becomes better open space & incorporates more design features it becomes costly. In contrast to a typical auto-court scheme, there is no interior space used for parking, so all FAR is provided as usable area.

EVALUATION:

1. FAR exemptions must be clarified to exempt all open space lids on top of parking. Otherwise, schemes like this will be penalized if they are built on downhill sites.
2. Green Factor of 0.6 is very problematic. A GF score of about 0.4 can be achieved by extensive landscaping & use of permeable paving. Height limits make it very difficult to provide the type of roof (low sloped shed) that would allow this to be installed in a manner that is easily constructed.
3. Area required for waste bin storage is excessive & inflexible. The required dimensions are incompatible with parking dimensions. The side yard becomes the most expedient location.
4. The current code is based on an assumption of 9' floor to floor. That is not an assumption that conforms to current norms and best practices of the construction industry.

CONCLUSIONS:

1. A rationally designed 3 story building over structured parking requires more height that is currently allowed by code. A 4' height bonus should be provided to projects with structured sub-grade parking
2. Other than height, the proposed code provides for a workable solution with a mix of high density flats and townhouses. It might even pencil out to provide market rate flats that are smaller and more affordable, thus addressing a demographic that is currently neglected.
3. Setback averaging should not include the parking lid. Side setbacks should be an aggregate of the two sides.

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COURTYARD TOWNHOMES

L3	50' x 100'	MID-BLOCK
WHITE HAT	DEPARTURE FOR SOLAR	

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	5000
FAR	1.38
NUMBER OF UNITS	6
TOTAL GROSS SQUARE FOOTAGE	7225
NUMBER OF PARKING STALLS	6
TYPE OF PARKING	4 FEET BELOW GRADE
OPEN SPACE TOTAL	759
OPEN SPACE AT GRADE	256
OPEN SPACE ABOVE GRADE	503
AMENITY SPACE SQUARE FOOTAGE	1329
GREEN FACTOR (attach calculations)	0.63
LOT COVERAGE (2445 SF)	48.9%
BUILDING HEIGHT/ROOF PEAK	33'-0"
IMPERVIOUS SURFACE	30%
OPEN SPACE/LOT SIZE RATIO	15.2%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 833SF

ENABLING FACTORS:

1. The proposed code FAR exception for partially below grade parking encourages structured parking in this scheme thereby creating a usable amenity space at "grade" for the homeowners and 6 townhouse units
2. Reduced setbacks, each averaged at 7 feet per side, free up the center of the site to create the courtyard scheme.
3. A Departure is required for the solar tubes on the roof that extend above the allowable height limit.

GATING MECHANISMS:

1. Because of the FAR incentive for partially below grade parking, the building is pushed a minimum of 4 feet up above existing grade. As height is measured from existing or finished grade (whichever is lower), the height limit of the development is reduced by the depth the garage extends above grade.

COST FACTORS:

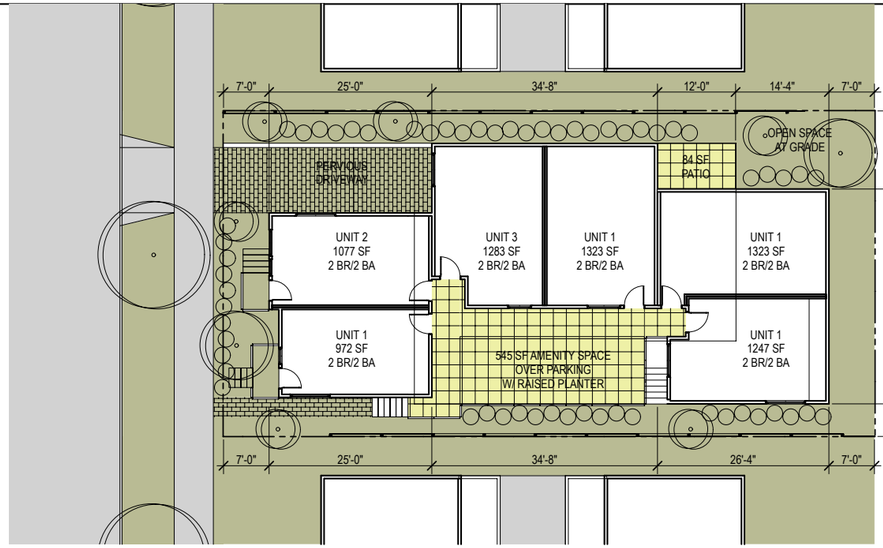
1. The primary cost factor in this scheme is structured parking. Providing quality open space on top of the parking and burying the parking below grade adds cost, but this can be compensated for by creating additional units.
2. Providing sustainable systems such as solar for hot water and green roofs adds cost at the time of construction.

EVALUATION:

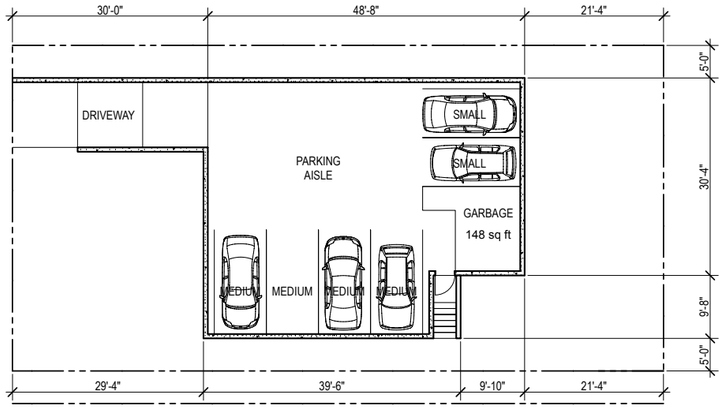
1. Utizilizing FAR, reduced setbacks and green factor creates more flexibility and as a result should enable a greater variety of housing. With this flexibility, this L3 site achieves the density goal of the current code, greater than the autocourt typology.
2. The increased density achievable because of flexibility may cover the cost required for partially below grade parking
3. Green Factor of 0.6 is very problematic. The table scores shrubs to closely to trees and does not account for the positive effect of trees to define space, provide fruit and shade. Green roofs become mandatory under the proposed code if you do not choose to use vegetated walls. In this scheme, we see almost the entire roof covered with green roof in order to preserve some usable ground surface.
4. With structured parking, the large prescribed area for trash, etc. can only be located in the garage.
5. All roof types should qualify for the additional 5 feet of height in Lowrise 3. In addition, height should be measured from the top of the partially below grade parking structure, or the FAR incentive for parking 4 feet below grade will not be used.

GREEN FACTOR

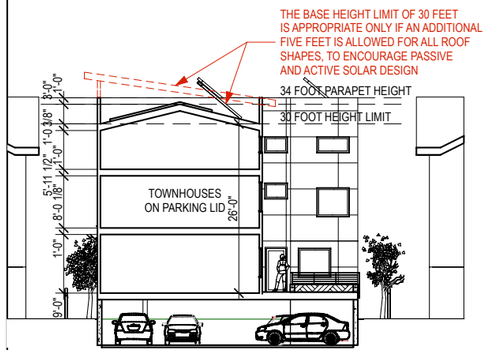
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1832	0.6	1099.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1832	0.1	183.2
SHRUBS OR PERENINIALS 2'+ AT MATURITY		944	0.3	283.2
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	6	100	0.3	180.0
NUMBER OF MEDIUM/LARGE TREES	2	150	0.4	120.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1356	0.7	949.2
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		371	0.2	74.2
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		600	0.1	60.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				3129.0
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.63**



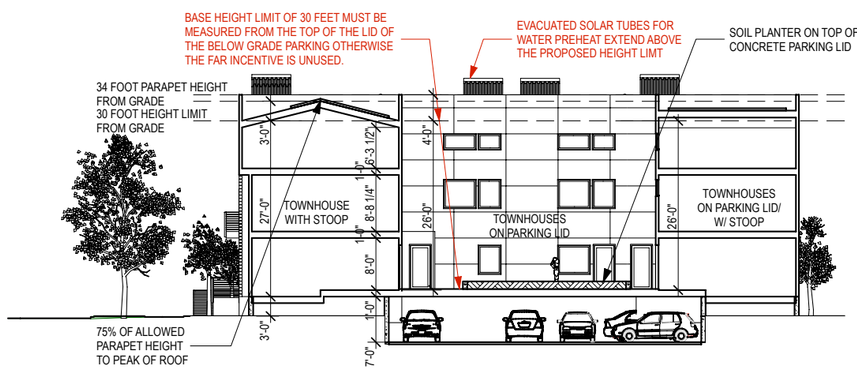
SITE PLAN SCALE: 3/32" = 1'-0"



PARKING LEVEL PLAN SCALE: 3/32" = 1'-0"



CROSS SECTION SCALE: 3/32" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

W10

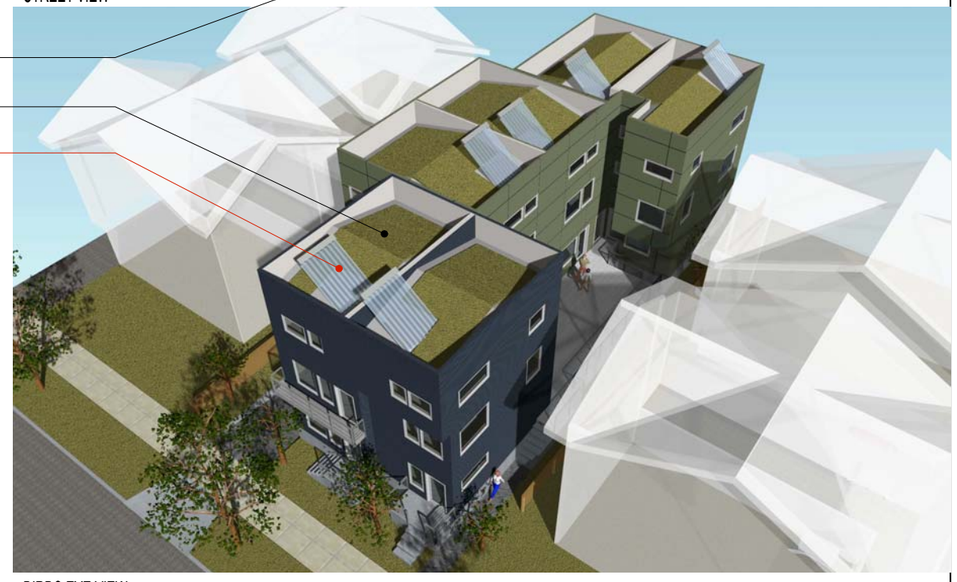
STREET VIEW

STREET VIEW

STOOPS AT STREET FACADE RAISE LIVING FLOOR FROM SIDEWALK

GREEN ROOF COVERS MOST OF PITCHED ROOF BEHIND ALLOWABLE PARAPET

SOLAR TUBES EXTEND ABOVE HEIGHT LIMIT.



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**5000**
FAR	1.38
NUMBER OF UNITS	6
TOTAL GROSS SQUARE FOOTAGE	7225
NUMBER OF PARKING STALLS	6
TYPE OF PARKING	4 FEET BELOW GRADE
OPEN SPACE TOTAL	759
OPEN SPACE AT GRADE	256
OPEN SPACE ABOVE GRADE	503
AMENITY SPACE SQUARE FOOTAGE	1329
GREEN FACTOR (attach calculations)	0.63
LOT COVERAGE (SF)	48.9%
BUILDING HEIGHT/ROOF PEAK	33'-0"
IMPERVIOUS SURFACE	30%
OPEN SPACE/LOT SIZE RATIO	15.2%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 833 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1832	0.6	1099.2
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1832	0.1	183.2
SHRUBS OR PERENINIALS 2'+ AT MATURITY		944	0.3	283.2
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	6	100	0.3	180.0
NUMBER OF MEDIUM/LARGE TREES	2	150	0.4	120.0
NUMBER OF LARGE TREES	1	200	0.4	80.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1356	0.7	949.2
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		371	0.2	74.2
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		600	0.1	60.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				3129.0
PARCEL SIZE				5000
TOTAL GREEN FACTOR				**0.63**

W10 – COURTYARD TOWNHOMES

L3	50'X100'	MID-BLOCK	WHITE HAT	DEPARTURE: SOLAR

ENABLING FACTORS:
1. The proposed code FAR exception for partially below grade parking encourages structured parking in this scheme thereby creating a usable amenity space at "grade" for the homeowners and 6 townhouse units
2. Reduced setbacks, each averaged at 7 feet per side, free up the center of the site to create the courtyard scheme.
3. A departure is required for the solar tubes on the roof that extend above the allowable height limit.

GATING MECHANISMS:
1. Because of the FAR incentive for partially below grade parking, the building is pushed a minimum of 4 feet up above existing grade. As height is measured from existing or finished grade (whichever is lower), the height limit of the development is reduced by the depth the garage extends above grade.

COST FACTORS:
1. The primary cost factor in this scheme is structured parking. Providing quality open space on top of the parking and burying the parking below grade adds cost, but this can be compensated for by creating additional units.
2. Providing sustainable systems such as solar for hot water and green roofs adds cost at the time of construction.

EVALUATION:
1. FAR, reduced setbacks and green factor creates more flexibility and as a result should enable a greater variety of housing. With this flexibility, this L3 site achieves the density goal of the current code, greater than the auto-court typology.
2. The increased density achievable because of flexibility may cover the cost required for partially below grade parking structure.
3. Green Factor of 0.6 is very problematic. The table scores shrubs too closely to trees and does not account for the positive effect of trees to define space, provide fruit and shade. Green roofs become mandatory under the proposed code if you do not choose to use vegetated walls. In this scheme, we see almost the entire roof covered with green roof in order to preserve some usable ground surface.
4. With structured parking, the large prescribed area for trash, etc. can only be located in the garage.
5. All roof types should qualify for the additional 5 feet of height in Lowrise 3. In addition, height should be measured from the top of the partially below grade parking structure, or the FAR incentive for parking 4 feet below grade will not be used.

CONCLUSIONS:
1. The proposed code intends to encourage below grade parking. Due to the high cost of structured below grade parking, most sites will seek to provide at grade parking. In order to encourage the partially below grade parking that qualifies for an FAR incentive, a height bonus will need to be provided. It is unlikely that a developer will give up 4 to 5 feet of building height to incur a cost of structuring parking partially below grade.
2. Allow all roof shapes and types to qualify for the additional 5 feet of height.

CORArchitecture

21 UNIT WORKFORCE HOUSING

L3	60'x 120'	MID-BLOCK
WHITE HAT		NO DEPARTURES

PROJECT DATA

COMPONENT		AMOUNT
LOT SIZE		7200
FAR		1.69
NUMBER OF UNITS		21
TOTAL GROSS SQUARE FOOTAGE		12582
NUMBER OF PARKING STALLS		16
TYPE OF PARKING	COVERED, PARITALLY BELOW GRADE	
OPEN SPACE TOTAL (5% of gross floor area required)		1300
AMENITY SPACE SQUARE FOOTAGE		1954
GREEN FACTOR (attach calculations)		0.6
LOT COVERAGE (SF)		63.0%
BUILDING HEIGHT/ROOF PEAK (+4' for parapet)		34'-5 1/2"
IMPERVIOUS SURFACE		75%
OPEN SPACE/LOT SIZE RATIO		18.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 342SF	

ENABLING FACTORS:

1. 20% reduction of parking plus one more car sharing (ideal for workforce housing) improves density/parking equation.
2. This scheme takes advantage of the height bonus for affordable housing and sustainable construction making the
3. Parking does not count toward FAR because it is partially below grade.

GATING MECHANISMS:

1. Parking count is the limiting factor, which is constrained by the size of the site.
2. If this project were located in a urban center and did not have parking, this project could be up to 28 units--a better density for workforce housing.

COST FACTORS:

1. The primary cost factor in this scheme is the structured parking.

EVALUATION:

1. FAR limits will allow greater density, and more flexiblity for housing, rather than units per square foot of lot size.

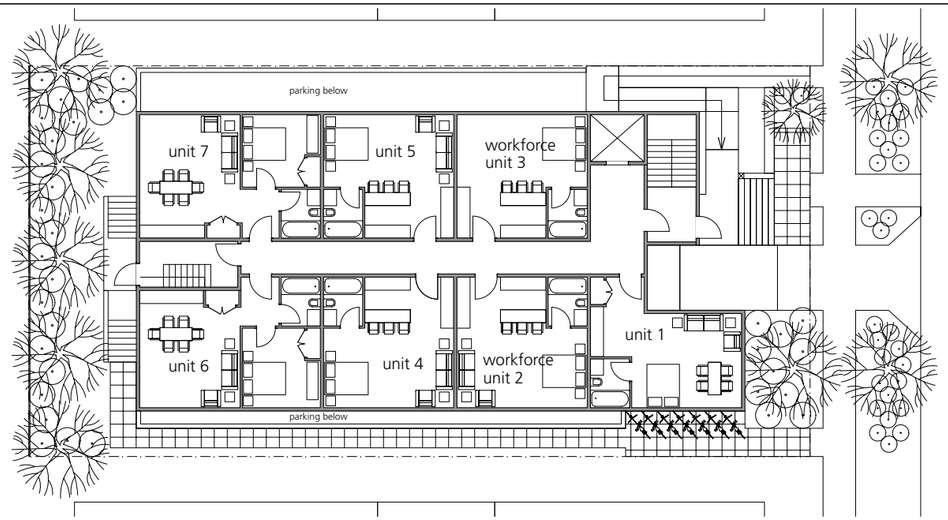
2. In order to attain a .6 green factor, vegetated walls must be used, however from a practical standpoint, the vegetated walls would probably not survive along the side yards.

3. The height bonus is a huge practical benefit, allowing partially below grade parking and an additional 7 units to offset the cost. If the city would like to create incentives for both density and screened parking, the bonus is effective. The 37' height limit would not allow 4 story buildings, even with fully below grade parking.

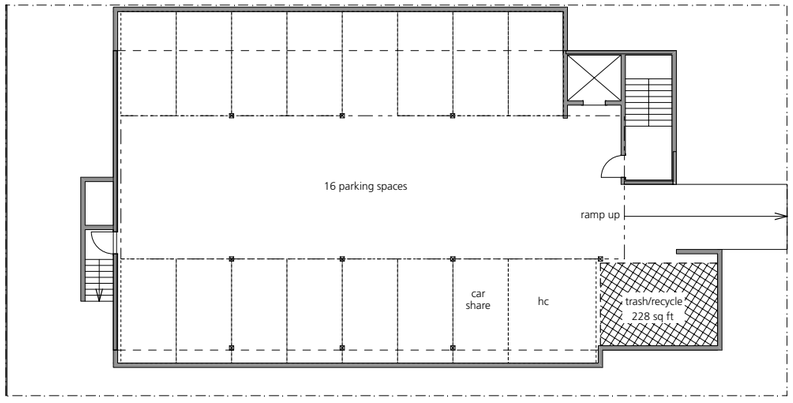
4. By eliminating the restriction of two/thirds of the amenity space at grade, there is more incentive to use the roof plane as amenity space/garden/patio, which is a very sensible tactic for creating community space for apartment flats.

GREEN FACTOR

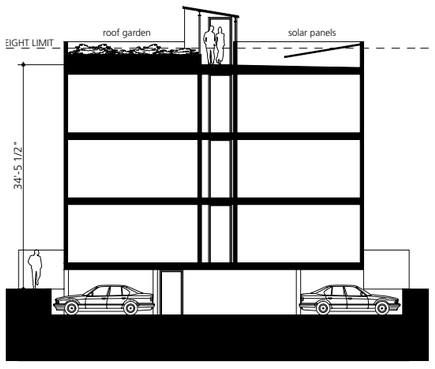
LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1413	0.6	847.8
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		1413	0.1	141.3
SHRUBS OR PERENINIALS 2'+ AT MATURITY		748	0.3	224.3
NUMBER OF SMALL TREES	0	50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	1	100	0.3	30.0
NUMBER OF MEDIUM/LARGE TREES	8	150	0.4	480.0
NUMBER OF LARGE TREES	0	200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1361	0.7	952.7
VEGETATED WALLS		1767	0.7	1236.9
APPROVED WATER FEATURES		72	0.7	50.4
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR		0	0.2	0.1
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		100	0.5	50.0
STRUCTURAL SOIL SYSTEMS		0	0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAIN		986	0.2	197.2
LANDSCAPING VISIBLE FROM RIGHT OF WAY		250	0.1	25.0
LANDSCAPING IN FOOD CULTIVATION		0	0.1	0.0
GREEN FACTOR NUMERATOR				4335.6
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**



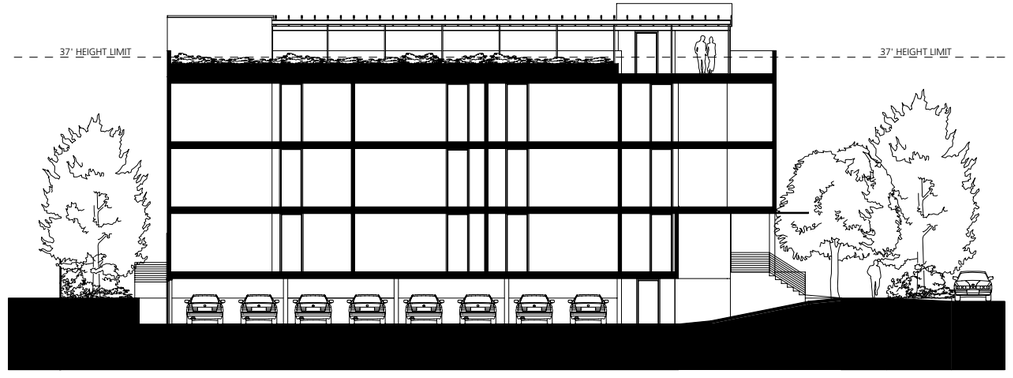
SITE PLAN SCALE: 3/32" = 1'-0"



PARKING PLAN SCALE: 3/32" = 1'-0"



CROSS SECTION SCALE: 3/32" = 1'-0"

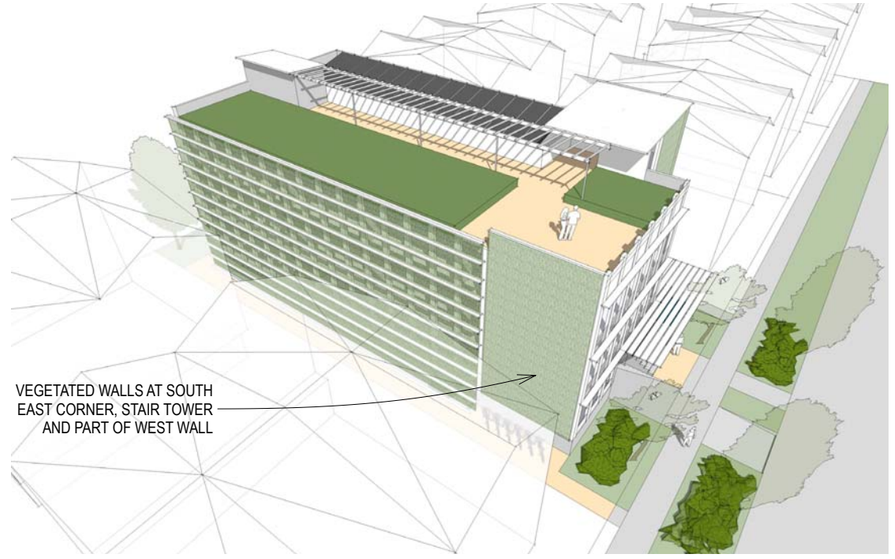


LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

W11

FRONT VIEW

FRONT VIEW



BIRDS EYE VIEW

PROJECT DATA

COMPONENT	AMOUNT
LOT SIZE	**7200**
FAR	1.69
NUMBER OF UNITS	21
TOTAL GROSS SQUARE FOOTAGE	12582
NUMBER OF PARKING STALLS	16
TYPE OF PARKING	HALF BELOW GRADE
OPEN SPACE TOTAL	629
OPEN SPACE AT GRADE	1427
OPEN SPACE ABOVE GRADE	527
AMENITY SPACE SQUARE FOOTAGE	1954
GREEN FACTOR (attach calculations)	0.60
LOT COVERAGE (SF)	63%
BUILDING HEIGHT/ROOF PEAK	34'5 ½"
IMPERVIOUS SURFACE	75%
OPEN SPACE/LOT SIZE RATIO	8.7%
UNIT DENSITY (UNITS PER LOT AREA)	1 UNIT/ 342 SF

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W/ SOIL DEPTH LESS THAN 24"		0	0.1	0.0
LANDSCAPED AREA W/ 24" OF SOIL OR GREATER		1413	0.6	847.8
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		1413	0.3	141.3
NUMBER OF SMALL TREES		50	0.3	0.0
NUMBER OF SMALL/MEDIUM TREES	1	100	0.3	30.0
NUMBER OF MEDIUM/LARGE TREES	8	150	0.4	480.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1361	0.7	952.7
VEGETATED WALLS		1767	0.7	50.4
APPROVED WATER FEATURES		72	0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		0	0.2	0.0
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL		100	0.5	50.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		1000	0.1	100.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER		986	0.2	197.2
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		0	0.1	0.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				4335.6
PARCEL SIZE				7200
TOTAL GREEN FACTOR				**0.60**

W11 - 21 UNIT WORKFORCE HOUSING

L3	60'x120'	MID-BLOCK	WHITE HAT	NO DEPARTURES

ENABLING FACTORS:

1. 20% reduction of parking plus one more car sharing (ideal for workforce housing) improves density/parking equation.
2. This scheme takes advantage of the height bonus for affordable housing and sustainable construction making the third story practical.
3. Parking does not count toward FAR because it is partially below grade.

GATING MECHANISMS:

1. Parking count is the limiting factor, which is constrained by the size of the site.

COST FACTORS:

1. The primary cost factor in this scheme is the structured parking.

EVALUATION:

1. FAR limits will allow greater density, and more flexibility for housing, rather than units per square foot of lot size.
2. In order to attain a .6 green factor, vegetated walls must be used, however from a practical standpoint, the vegetated walls would probably not survive along the side yards.
3. The height bonus is a huge practical benefit, allowing partially below grade parking and an additional 7 units to offset the cost. If the city would like to create incentives for both density and screened parking, the bonus is effective. The 37' height limit would not allow 4 story buildings, even with fully below grade parking.
4. By eliminating the restriction of two/thirds of the amenity space at grade, there is more incentive to use the roof plane as amenity space/garden/patio, which is a very sensible tactic for creating community space for apartment flats.

CONCLUSIONS:

1. The Height bonus for affordable housing was helpful, but not to provide a fourth story. Rather, it boosts the height limit to a number that is reasonable for a three story building over structured parking.
2. If this project were located in an urban center and did not have parking, this project could be up to 28 units--a better density for workforce housing.

CORArchitecture

ROW HOUSE - STREET PKG

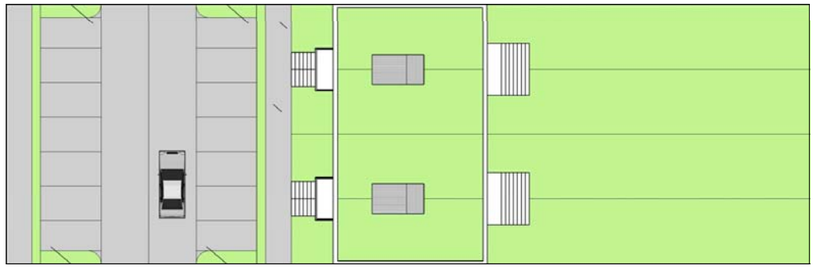
L3	60' x 100'	MID-BLOCK

PROJECT DATA

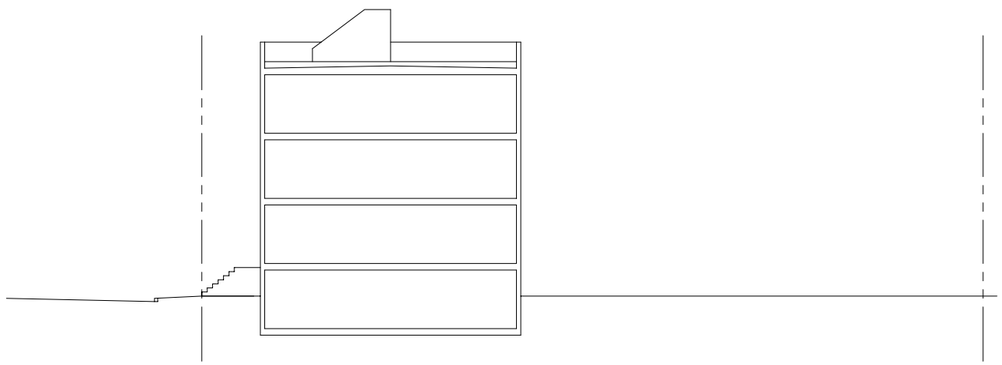
COMPONENT	AMOUNT
LOT SIZE	6000
FAR	1.10
NUMBER OF UNITS	8
TOTAL GROSS SQUARE FOOTAGE	8500
NUMBER OF PARKING STALLS	7
TYPE OF PARKING	STREET
OPEN SPACE TOTAL	5700
OPEN SPACE AT GRADE	3700
OPEN SPACE ABOVE GRADE	2000
AMENITY SPACE SQUARE FOOTAGE	0
GREEN FACTOR (attach calculations)	XXX
LOT COVERAGE (SF)	37.7%
BUILDING HEIGHT/ROOF PEAK	39'-0"
IMPERVIOUS SURFACE	0
OPEN SPACE/LOT SIZE RATIO	95.0%

GREEN FACTOR

LANDSCAPE ELEMENT	NUM	AREA (SF)	FACTOR	TOTAL
LANDSCAPED AREA W SOIL DEPTH LESS THAN 24"			0.1	0.0
LANDSCAPED AREA W 24" OF SOIL OR GREATER		4100	0.6	2460.0
BIORETENTION FACILITIES		0	1.0	0.0
GROUND COVERS OR PLANTS LESS THAN 2' AT MATURITY		0	0.1	0.0
SHRUBS OR PERENINIALS 2'+ AT MATURITY		800	0.3	240.0
NUMBER OF SMALL TREES	5	50	0.3	75.0
NUMBER OF SMALL/MEDIUM TREES	2	100	0.3	60.0
NUMBER OF MEDIUM/LARGE TREES		150	0.4	0.0
NUMBER OF LARGE TREES		200	0.4	0.0
NUMBER OF LARGE TREES PRESERVED			0.8	0.0
GREEN ROOF BETWEEN 2" AND 4" OF GROWTH MEDIUM			0.4	0.0
GREEN ROOF OF AT LEAST 4" OF GROWTH MEDIUM		1800	0.7	1260.0
VEGETATED WALLS			0.7	0.0
APPROVED WATER FEATURES			0.7	0.0
PERMEABLE PAVING OVER BETWEEN 6" AND 24" OF SOIL OR GRAVEL		756	0.2	151.2
PERMEABLE PAVING OVER AT LEAST 24" OF SOIL OR GRAVEL			0.5	0.0
STRUCTURAL SOIL SYSTEMS			0.2	0.0
BONUS				
DROUGHT TOLERANT OR NATIVE PLANT SPECIES		2600	0.1	260.0
LANDSCAPED AREA > 50% IRRIGATION BY HARVESTED RAINWATER			0.2	0.0
LANDSCAPING VISIBLE FROM RIGHT OF WAY OR PUBLIC OPEN SPACES		800	0.1	80.0
LANDSCAPING IN FOOD CULTIVATION			0.1	0.0
GREEN FACTOR NUMERATOR				4586.2
PARCEL SIZE				6000
TOTAL GREEN FACTOR				0.76



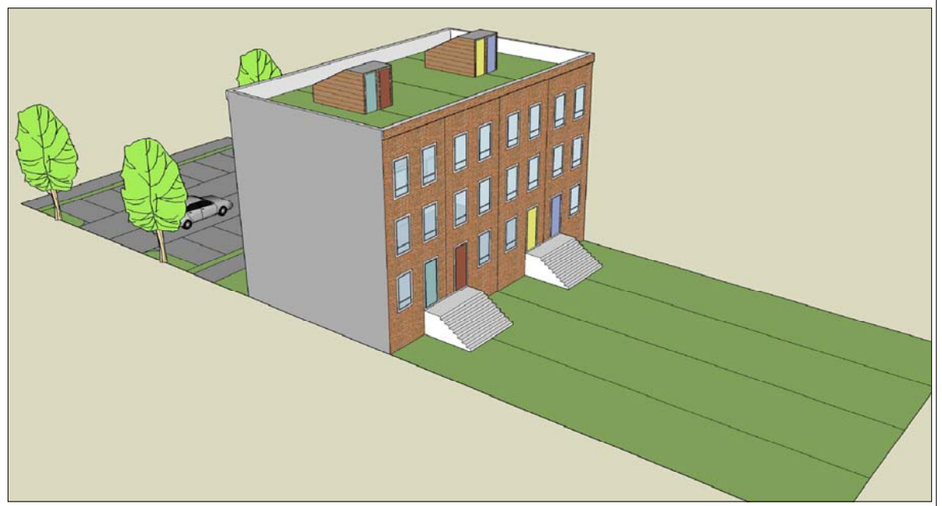
SITE PLAN SCALE: 1/16" = 1'-0"



LONGITUDINAL SECTION SCALE: 3/32" = 1'-0"

CROSS SECTION SCALE: 3/32" = 1'-0"

STREET VIEW



BIRDS EYE VIEW - REAR

BIRDS EYE VIEW - FRONT

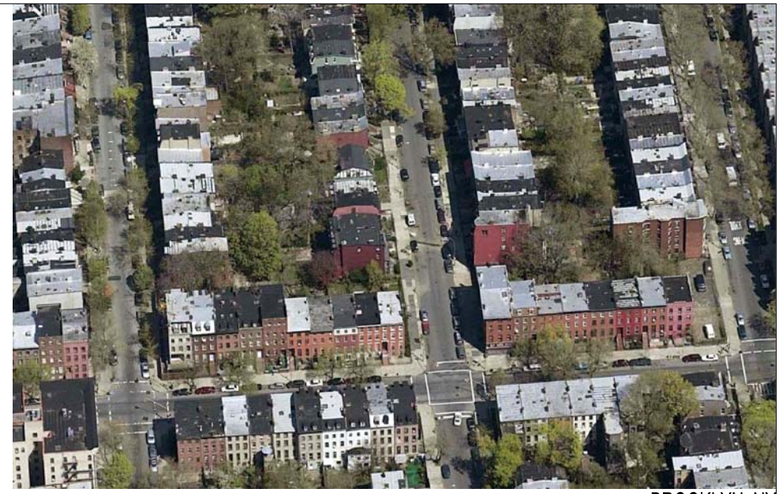
EXISTING URBAN DENSITY MODELS

BROOKLYN, NY

BROOKLYN, NY

SPAIN

LONDON



BROOKLYN, NY

BIRMINGHAM, ENGLAND

SEATTLE, WA

CORArchitecture

4-PACK

L3	40' x 100'	

PROJECT DATA	
LOT SIZE	4000 sq. ft.
FAR	1.7
NUMBER OF UNITS (PER LOT)	4
TOTAL GROSS SQUARE FOOTAGE	6800 sq. ft.
NUMBER OF PARKING STALLS	5
TYPE OF PARKING	MIXED
OPEN SPACE TOTAL (PER LOT)	1250 sq. ft.
OPEN SPACE AT GRADE (PER LOT)	942 sq. ft.
OPEN SPACE ABOVE GRADE (PER LOT)	308 sq. ft.
AMENITY SPACE SQUARE FOOTAGE	N / A
GREEN FACTOR (attach calculations)	.55
LOT COVERAGE (SF)	55.0%
BUILDING HEIGHT / ROOF PEAK	36'-6"
IMPERVIOUS SURFACE	30.0%
OPEN SPACE / LOT SIZE RATIO	33.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 / XXXX sf. ft.
BLOCK SIZE - 426' x 266' (360' x 200', w/ 66' R.O.W.'s)	113316 sq. ft.
LOTS PER BLOCK	18
UNITS PER ACRE	43
AVERAGE SQ. FOOTAGE (PER UNIT, PER ACRE)	1000 sq. ft.
NUMBER OF PARKING STALLS (ON-SITE, PER LOT)	4
NUMBER OF PARKING STALLS (OFF-SITE, PER LOT)	1
NUMBER OF PARKING STALLS (PER BLOCK)	106

SITE PLAN

BIRD'S-EYE VIEW

ROW HOUSE-BURIED PKG

L3	60' x 100'	

PROJECT DATA	
LOT SIZE	6000 sq. ft.
FAR	1.3
NUMBER OF UNITS (PER LOT)	8
TOTAL GROSS SQUARE FOOTAGE	10300 sq. ft.
NUMBER OF PARKING STALLS	10
TYPE OF PARKING	BURIED
OPEN SPACE TOTAL (PER LOT)	5100 sq. ft.
OPEN SPACE AT GRADE (PER LOT)	2900 sq. ft.
OPEN SPACE ABOVE GRADE (PER LOT)	3200 sq. ft.
AMENITY SPACE SQUARE FOOTAGE	
GREEN FACTOR (attach calculations)	.74
LOT COVERAGE (SF)	51.8%
BUILDING HEIGHT / ROOF PEAK	38'-0"
IMPERVIOUS SURFACE	2%
OPEN SPACE / LOT SIZE RATIO	85%
UNIT DENSITY (UNITS PER LOT AREA)	1 / 1285 sf. ft.
BLOCK SIZE - 426' x 266' (360' x 200', w/ 66' R.O.W.'s)	113316 sq. ft.
LOTS PER BLOCK	12
UNITS PER ACRE	58
AVERAGE SQ. FOOTAGE (PER UNIT, PER ACRE)	750 sq. ft.
NUMBER OF PARKING STALLS (ON-SITE, PER LOT)	8
NUMBER OF PARKING STALLS (OFF-SITE, PER LOT)	2
NUMBER OF PARKING STALLS (PER BLOCK)	136

SITE PLAN

BIRD'S-EYE VIEW

ROW HOUSE-STREET PKG

L3	60' x 100'	

PROJECT DATA	
LOT SIZE	6000 sq. ft.
FAR	1.1
NUMBER OF UNITS (PER LOT)	8
TOTAL GROSS SQUARE FOOTAGE	8500 sq. ft.
NUMBER OF PARKING STALLS	7
TYPE OF PARKING	STREET
OPEN SPACE TOTAL (PER LOT)	5700 sq. ft.
OPEN SPACE AT GRADE (PER LOT)	3700 sq. ft.
OPEN SPACE ABOVE GRADE (PER LOT)	2000 sq. ft.
AMENITY SPACE SQUARE FOOTAGE	
GREEN FACTOR (attach calculations)	.76
LOT COVERAGE (SF)	37.7%
BUILDING HEIGHT / ROOF PEAK	39'-0"
IMPERVIOUS SURFACE	0%
OPEN SPACE / LOT SIZE RATIO	95 %
UNIT DENSITY (UNITS PER LOT AREA)	1 / 1060 sf. ft.
BLOCK SIZE - 426' x 266' (360' x 200', w/ 66' R.O.W.'s)	113316 sq. ft.
LOTS PER BLOCK	13
UNITS PER ACRE	58
AVERAGE SQ. FOOTAGE (PER UNIT, PER ACRE)	750 sq. ft.
NUMBER OF PARKING STALLS (ON-SITE, PER LOT)	0
NUMBER OF PARKING STALLS (OFF-SITE, PER LOT)	7
NUMBER OF PARKING STALLS (PER BLOCK)	124

SITE PLAN

BIRD'S-EYE VIEW

ROW HOUSE-TUNNEL PKG

L3	60' x 100'	

PROJECT DATA	
LOT SIZE	6000 sq. ft.
FAR	1.23
NUMBER OF UNITS (PER LOT)	8
TOTAL GROSS SQUARE FOOTAGE	9400 sq. ft.
NUMBER OF PARKING STALLS	6
TYPE OF PARKING	MIXED
OPEN SPACE TOTAL (PER LOT)	3590 sq. ft.
OPEN SPACE AT GRADE (PER LOT)	1550 sq. ft.
OPEN SPACE ABOVE GRADE (PER LOT)	2040 sq. ft.
AMENITY SPACE SQUARE FOOTAGE	N / A
GREEN FACTOR (attach calculations)	.67
LOT COVERAGE (SF)	52.5%
BUILDING HEIGHT / ROOF PEAK	38'-0"
IMPERVIOUS SURFACE	22.0%
OPEN SPACE / LOT SIZE RATIO	62.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 / 1175 sf. ft.
BLOCK SIZE - 426' x 266' (360' x 200', w/ 66' R.O.W.'s)	113316 sq. ft.
LOTS PER BLOCK	12
UNITS PER ACRE	58
AVERAGE SQ. FOOTAGE (PER UNIT, PER ACRE)	750 sq. ft.
NUMBER OF PARKING STALLS (ON-SITE, PER LOT)	4
NUMBER OF PARKING STALLS (OFF-SITE, PER LOT)	2
NUMBER OF PARKING STALLS (PER BLOCK)	88

SITE PLAN

BIRD'S-EYE VIEW

ROW HOUSE-ALLEY PKG

L3	60' x 100'	

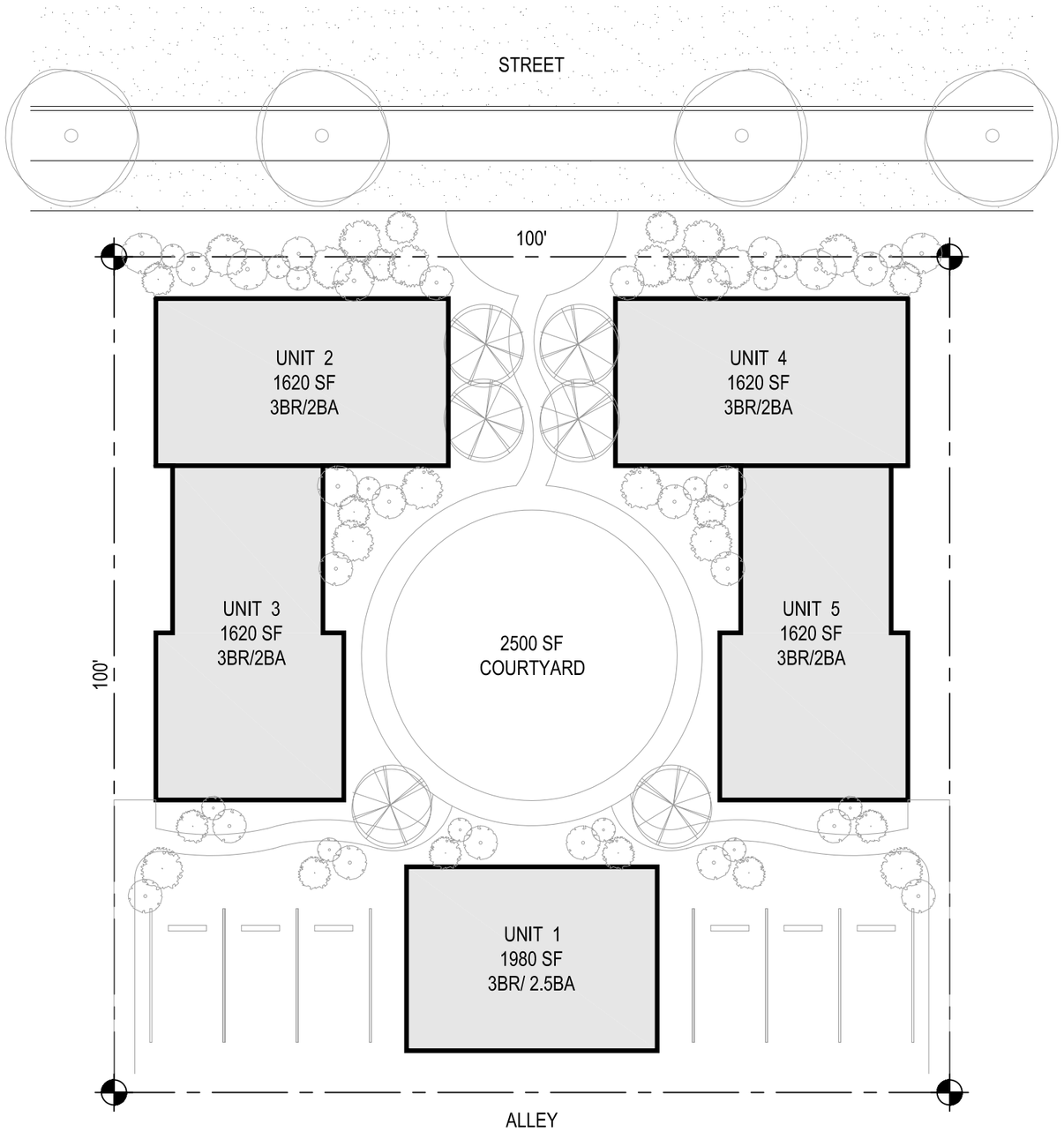
PROJECT DATA	
LOT SIZE	6000 sq. ft.
FAR	1.23
NUMBER OF UNITS (PER LOT)	8
TOTAL GROSS SQUARE FOOTAGE	9400 sq. ft.
NUMBER OF PARKING STALLS	7
TYPE OF PARKING	MIXED
OPEN SPACE TOTAL (PER LOT)	4420 sq. ft.
OPEN SPACE AT GRADE (PER LOT)	2380 sq. ft.
OPEN SPACE ABOVE GRADE (PER LOT)	2040 sq. ft.
AMENITY SPACE SQUARE FOOTAGE	N / A
GREEN FACTOR (attach calculations)	.71
LOT COVERAGE (SF)	52.5%
BUILDING HEIGHT / ROOF PEAK	38'-0"
IMPERVIOUS SURFACE	8.0%
OPEN SPACE / LOT SIZE RATIO	76.0%
UNIT DENSITY (UNITS PER LOT AREA)	1 / 1175 sf. ft.
BLOCK SIZE - 426' x 266' (360' x 200', w/ 66' R.O.W.'s)	113316 sq. ft.
LOTS PER BLOCK	12
UNITS PER ACRE	58
AVERAGE SQ. FOOTAGE (PER UNIT, PER ACRE)	750 sq. ft.
NUMBER OF PARKING STALLS (ON-SITE, PER LOT)	5
NUMBER OF PARKING STALLS (OFF-SITE, PER LOT)	2
NUMBER OF PARKING STALLS (PER BLOCK)	92

SITE PLAN

BIRD'S-EYE VIEW

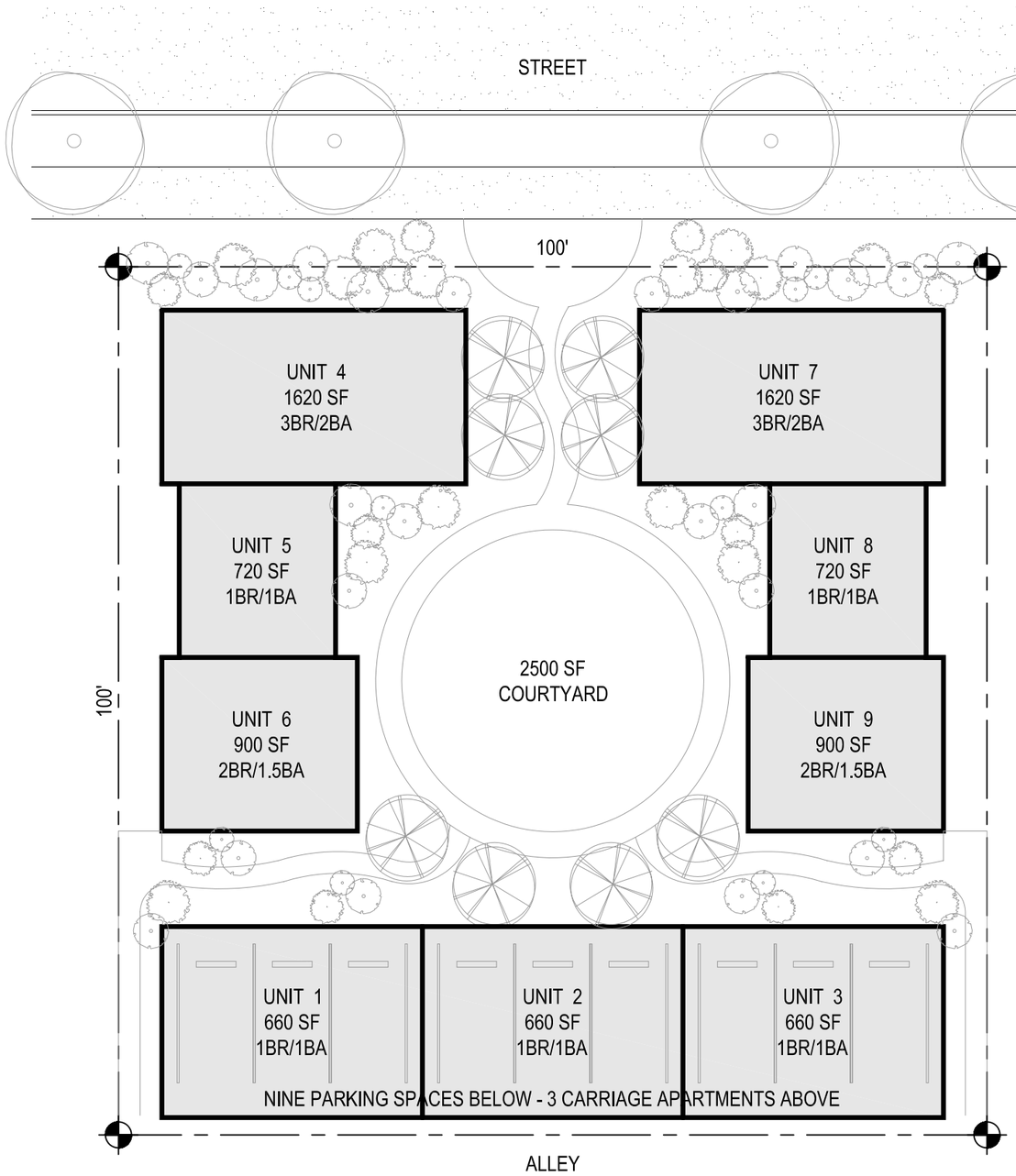
Appendix A

How Density Limits affects unit size and affordability.



LDT - WITH DENSITY LIMITS - FIVE UNITS
FAR = 1.0

A



LDT - NO DENSITY LIMITS - NINE UNITS
FAR = 1.0

B

How Density Limits affect the Size and Sales Price of Multi-Family Housing

A Comparison of Two Townhouse Projects

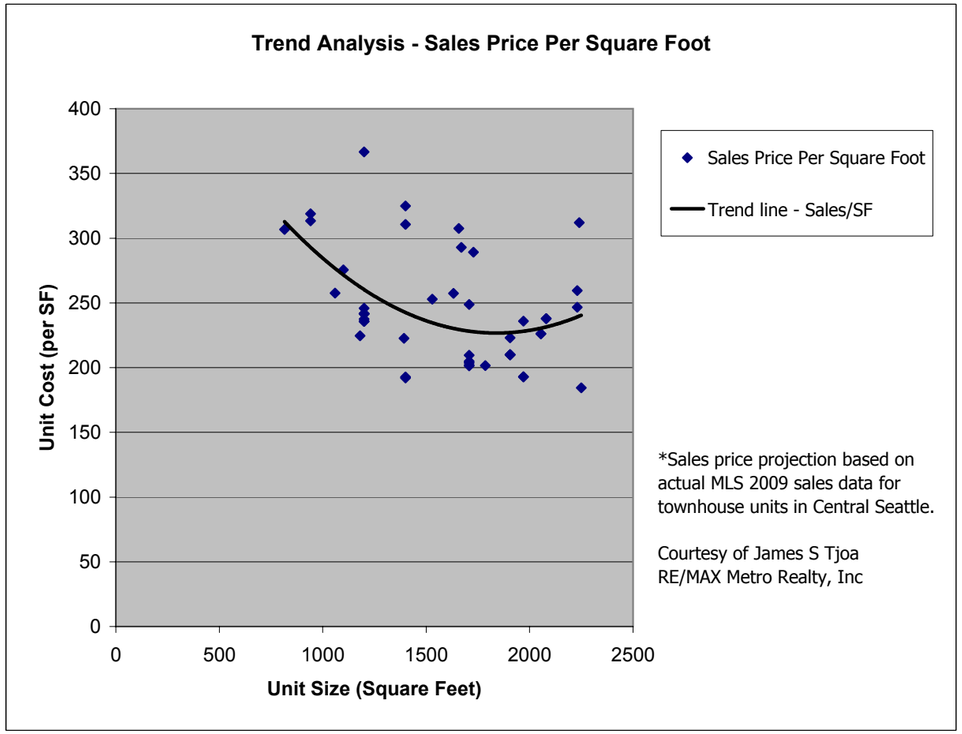
SALES PRICE ANALYSIS

Version A - With Density Limits

Unit	Size (sf)	Sales Price (Cost/sf)*	Unit Price
1	1980	235	$465,300
2	1620	235	$380,700
3	1620	235	$380,700
4	1620	235	$380,700
5	1620	235	$380,700
Average	1692	235	$397,620

Version B -No Density Limits

Unit	Size (sf)	Sales Price (Cost/sf)*	Unit Price
1	660	330	$217,800
2	660	330	$217,800
3	660	330	$217,800
4	1620	235	$380,700
5	720	315	$226,800
6	900	285	$256,500
7	1620	235	$380,700
8	720	315	$226,800
9	900	285	$256,500
Average	940	296	$264,600



*Sales price projection based on actual MLS 2009 sales data for townhouse units in Central Seattle.

Courtesy of James S Tjoa
RE/MAX Metro Realty, Inc

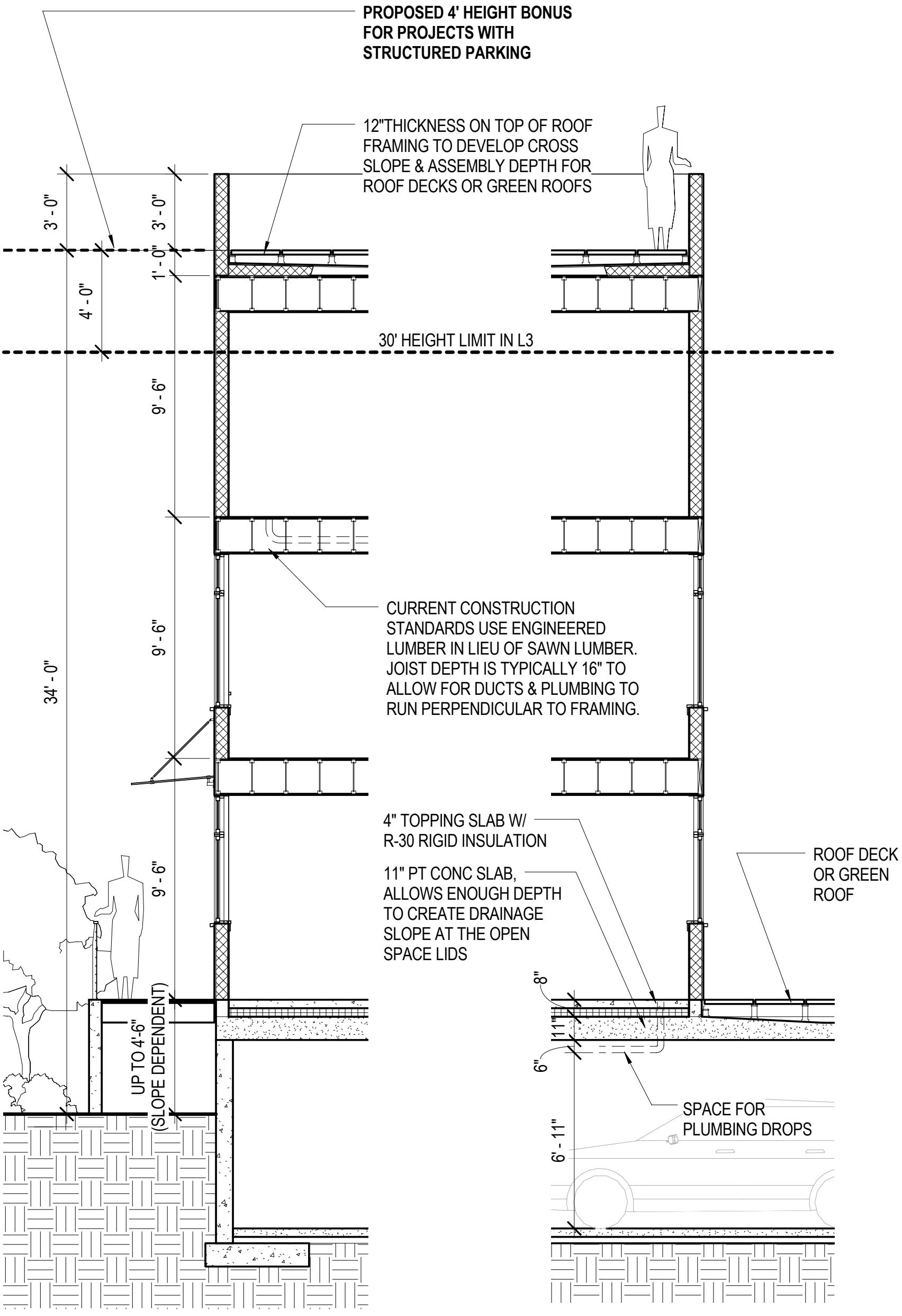
Comparisons:

Scheme B (No density limits) has an average sales price that is 2/3 the price of Scheme A. It is a more desirable scheme for buyers.

Scheme B has 26% higher total sales than Scheme A. It is a more desirable scheme for developers.

Appendix B

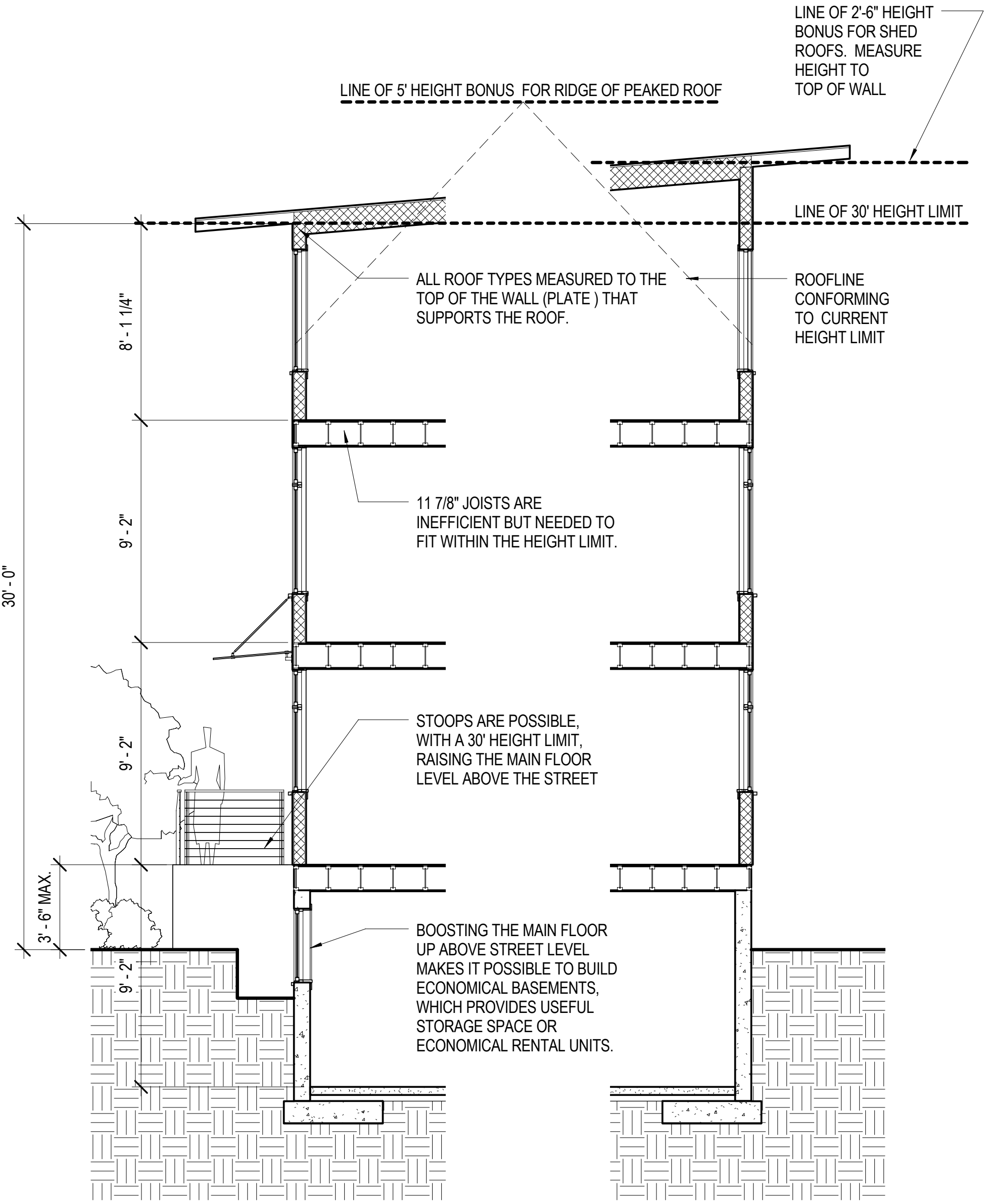
Recommended Height Limit Modifications



Recommended Height Limit for L3

Realistic heights for three story flats with structured parking & open space

A return to the 30' height limit allowed in single family zones and removing the bias in the code toward steep gabled roofs will allow a wider variety of roof forms, allow the living space of the units to be raised above street level, and allow for the economical construction of basements



Recommended Height Limit for LDT/L1/L2

Section of typical townhome using height limits equal to Single Family Zoning

Appendix C

What's Wrong With the Current Code?

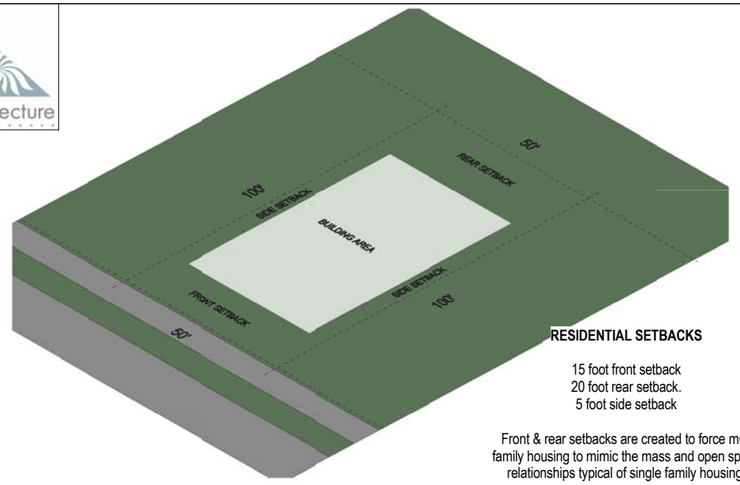
CORArchitecture

ANATOMY OF A 4 PACK

WHAT'S WRONG WITH THE CURRENT CODE?

Today's code was written in a highly prescriptive manner with a very specific outcome in mind: Multi-family housing that looked compatible with single-family housing.

The actual housing the code produced is of a very different charachter. The 4-pack was not an anticipated outcome. The 4-pack is a case of good intentions gone awry.

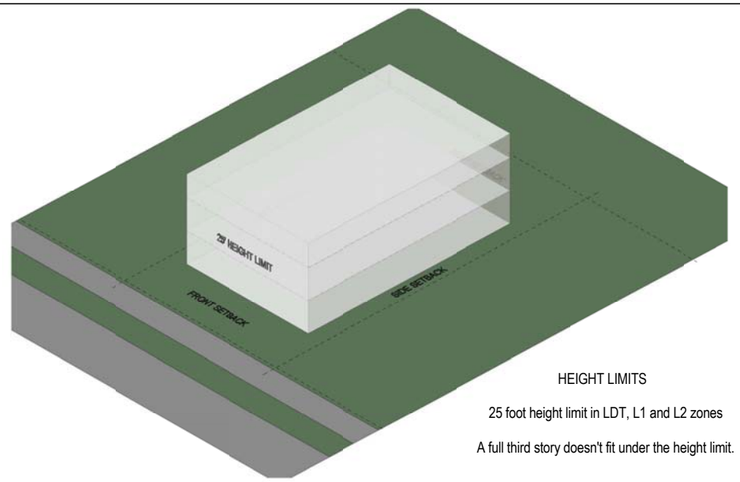


RESIDENTIAL SETBACKS

15 foot front setback
20 foot rear setback.
5 foot side setback

Front & rear setbacks are created to force multi-family housing to mimic the mass and open space relationships typical of single family housing.

1 - SETBACKS

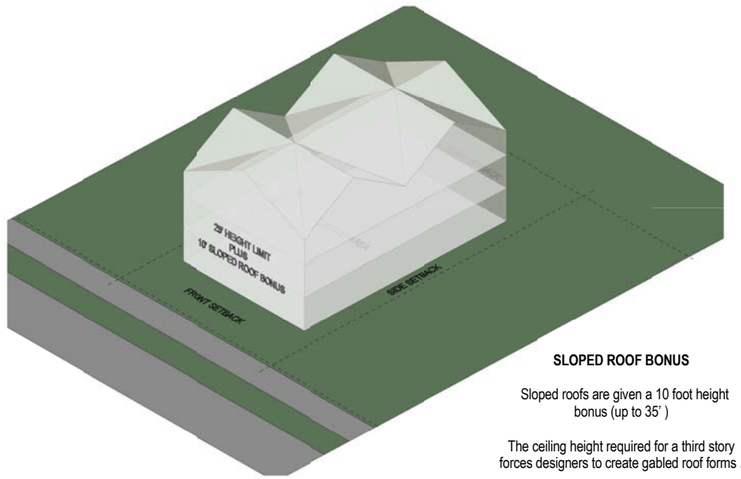


HEIGHT LIMITS

25 foot height limit in LDT, L1 and L2 zones

A full third story doesn't fit under the height limit.

2 - 25' HEIGHT LIMIT

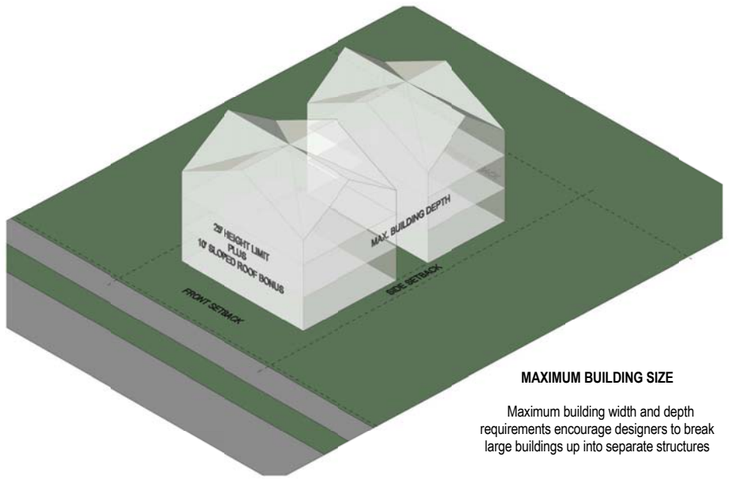


SLOPED ROOF BONUS

Sloped roofs are given a 10 foot height bonus (up to 35')

The ceiling height required for a third story forces designers to create gabled roof forms .

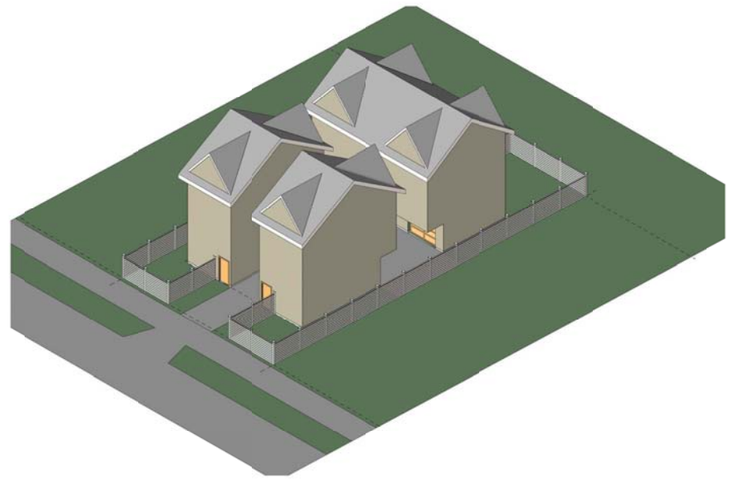
3 - SLOPED ROOF BONUS



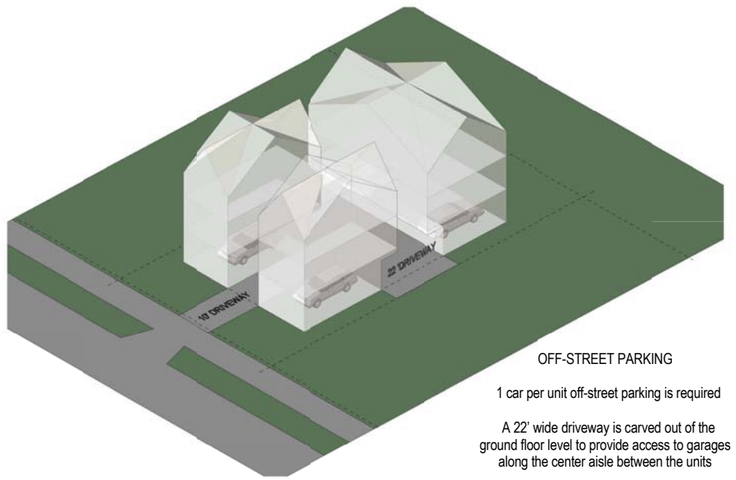
MAXIMUM BUILDING SIZE

Maximum building width and depth requirements encourage designers to break large buildings up into separate structures

4 - MAX BUILDING DEPTH



7 - FINISHED 4 PACK

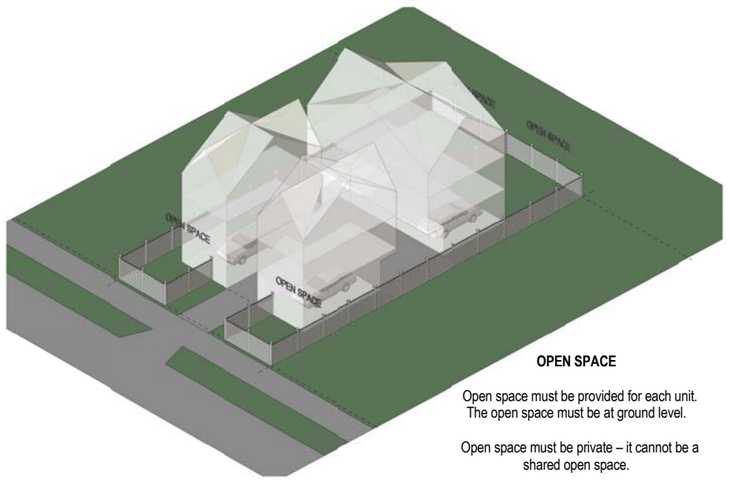


OFF-STREET PARKING

1 car per unit off-street parking is required

A 22' wide driveway is carved out of the ground floor level to provide access to garages along the center aisle between the units

5 - PARKING REQUIREMENTS



OPEN SPACE

Open space must be provided for each unit. The open space must be at ground level.

Open space must be private – it cannot be a shared open space.

6 - PRIVATE OPEN SPACE

SINGLE FAMILY SETBACKS
+
REQUIRED OPEN SPACE
+
OFF STREET PARKING
+
MULTI-FAMILY DENSITY
+
SEATTLE LOT SIZES
+
NO ALLEY ACCESS

=

These factors taken together create the 4-pack .

Which ones are you willing to change?